DEVELOPMENT AND CONSTRUCT VALIDATION OF A MEASURE OF SOFT SKILLS PERFORMANCE

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DEVELOPMENT AND CONSTRUCT VALIDATION OF A MEASURE OF SOFT SKILLS PERFORMANCE

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To my parents, Steve and Sheryl,

for their unfaltering confidence and support of my endeavors

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SUMMARY

Despite the growing interest in studying the dimensions and prediction of task and contextual performance, little empirical attention has been given to studying the nature of soft skills performance. Soft skills (i.e., intra- and inter-personal work skills that facilitate the application of technical skills and knowledge), such as interpersonal skills (e.g., developing rapport) and communication skills (e.g., adjusting your message to the target audience) are highly sought by organizations (Zedeck & Goldstein, 2000). However, little is known about the underlying dimensions of soft skills performance, or about the individual differences variables that predict performance in this domain. In the current set of studies I examined the dimensionality of soft skills performance, developed measures to assess soft skills performance from self and supervisor perspectives, and validated the measure of performance in a nomological network of non-ability individual differences and existing performance measures. Study 1 involved asking subject-matter experts to provide a master list and critical incidents of soft skills. Data from Study 1 served as the stimuli in Study 2 for sorting and reduction of skills into dimensions of soft skills performance. A construct and criterion validation approach was taken in Study 3 to measure soft skills performance in relation to individual differences variables in a nomological network. Results showed that the taxonomy of soft skills performance is composed of seven clusters, but that the measure of soft skills performance was unidimensional. Personality and motivational variables significantly predicted soft skills performance through their influence on proximal motivational processes.

CHAPTER 1

INTRODUCTION

The shift in the workplace from manufacturing/production work to service/knowledge work (Drucker, 1993) has brought about changes in the nature of job performance in the developed world. As organizations become more focused on service-oriented work, employees must be able to effectively perform behaviors related to the interpersonal nature of work performance. Jobs in the service sector are characterized as interpersonal, and usually result in dyadic or face-to-face interactions with employees, customers, or clients (Bowen & Schneider, 1988). Research has suggested that workers need to make decisions on their own and work as members of teams (Ryan, 1995). Employers are considering the role that effective "soft skill" performance can play in employees helping to achieve organizational goals. To assess a candidate properly, executives must consider the full range of performance criteria, including the various soft skills that are difficult to judge (Sorcher & Brant, 2002). The importance of soft skills has been acknowledged in several occupations, (e.g., managers, Boyatzis, 1982; pilots, Damitz, Manzey, Kleinmann, & Severin, 2003; entry-level workers, Holzer, Stoll, & Wissoker, 2004), across cultures (e.g., Nonaka & Johannson, 1985), and across job and pay levels (Wilson, 1997 as reported in Strauser & Waldrop, 1999). For example, accident investigation studies indicate that the majority of incidents in commercial aviation, which can be attributed to pilot error, occur due to the ineffectiveness of interpersonal interactions and cockpit crew teamwork (Cooper, White, & Lauber, 1979). Indeed, survey research by Holzer et al. (2004) found that over half of entry-level jobs

require social and interpersonal skills. The importance of soft skills in successful Japanese organizations in the 1980s was acknowledged as being as important as the hard skills (e.g., computer training, strategic planning, skills training, e.g., DePinto & Deal, 2004). Although organizations make selection and performance evaluation decisions based in part on employees' soft skills (Sorcher & Brant, 2002), relatively little is known in the empirical literature about dimensions of soft skills or the individual differences traits that relate to soft skills performance.

Reasons for the lack of scientific study on soft skills include: the difficulty of finding a "true expert," the general lack of clarity concerning criterion measures; the idea that soft skills are disparately related to each other (Jacobs, 1973); and the difficulty and subjectivity with which soft skills are measured (Wilkinson & Orth, 1986). For present purposes, I define soft skills as intra- and inter-personal work skills that facilitate the application of technical skills and knowledge. They include workplace competencies, such as problem solving, communication skills, personal qualities and work ethic, interpersonal skills, and teamwork skills (Leigh, Lee, & Lundquist, 1999). Soft skills such as interpersonal skills (e.g., dealing with conflict) and communication skills (e.g., gathering and sharing information) are sought by organizations (Zedeck & Goldstein, 2000). To the extent that these skills are trans-situational, they will continue to be important for the selection and development of employees in a workforce characterized by short job tenures (i.e., 4.0 years, Bureau of Labor Statistics, 2004) and service-oriented work.

Research on soft skills performance is important to complement and extend job performance theories (i.e., task and contextual performance; Motowidlo & van Scotter,

1994). Literature has advocated expanding the job performance criterion domain to include non-task elements of performance (Borman & Motowidlo, 1993). Early speculation suggested that feedback about interpersonal skills affects job performance (Argyris, 1962). More recent ideas suggest that competencies, or "underlying characteristics of a person … such as motives, traits, skills, aspects of one's self-image or social role, or bodies of knowledge which he or she uses" (Boyatzis, 1982, p. 21), represent the knowledge, skills, and abilities needed for occupational success (McClelland, 1973). Competencies such as delegating work and providing feedback have been acknowledged as critical skills for managerial job performance (Rausch, Sherman, & Washbush, 2002). Boyatzis (1982), for example, investigated the question of which skills and competencies distinguished "effective" and "less effective" managers by integrating research findings from corporate strategy, social psychology, personality theory, and organizational behavior. Archival data of 2000 individuals in 41 jobs in 12 organizations were analyzed to assess managerial competencies, and evidence for six competency clusters that describe managerial performance was found, namely, goal and action management, leadership, human resource management, directing subordinates, focus on others, specialized knowledge. The few studies that have been conducted in this area over the past 25 years have been largely disconnected, and to date there has not been research that seeks to broadly conceptualize the domain and develop a nomological network of the construct space.

The primary goal of the current research is to investigate the following research questions: (1) What are the dimensions of soft skills performance? and (2) What individual differences variables relate to the dimensions of soft skills performance? A

related goal of the research is to develop a new measure of soft skills performance. As shown in Figure 1, dimensions were derived and their nature was explored, in a series of three studies. Study 1 involved the generation of behavior exemplars and critical incidents by subject matter experts (SMEs). Study 2 involved reduction of the list of behavior descriptors to its underlying dimensions. Study 3 involved exploration of the predictors that relate to a new measure of soft skills performance. Individual traits and dispositions are hypothesized to influence the extent to which individuals are effective at soft skills performance.

I approached the study of soft skills from a construct validity perspective (Campbell & Fiske, 1959). Such an approach involves the identification of predictor and criterion measures to establish convergent and discriminant relations to account for the patterns of covariation. Despite repeated calls for construct validation of performance measures (Austin & Villanova, 1992), relatively little is known about the construct validity of ratings. For example, Lance (1994) pointed out how very few studies on the construct validation of performance ratings have been theoretically based. Construct validation of performance ratings begins with an explication of the constructs of interest and investigation of the hypothesized dimensions. A common method for assessing the construct validity of performance measures has been to examine evidence of convergent and discriminant validity across rating sources (e.g., self and supervisor).

To provide a foundation for the current set of studies, I reviewed relevant literature in four areas. First, I discussed soft skills performance in the context of the broader domain of job performance. Next, I reviewed and summarized broad conceptualizations of soft skills. These approaches focus on four areas:

leadership/people/relationship skills, communication skills, management/organization skills, and cognitive skills and knowledge. I then reviewed theory and research focused on the predictive validity of non-ability individual differences for job performance. In the fourth and final section of the literature review, I summarized research directed at understanding self versus other sources of performance ratings.

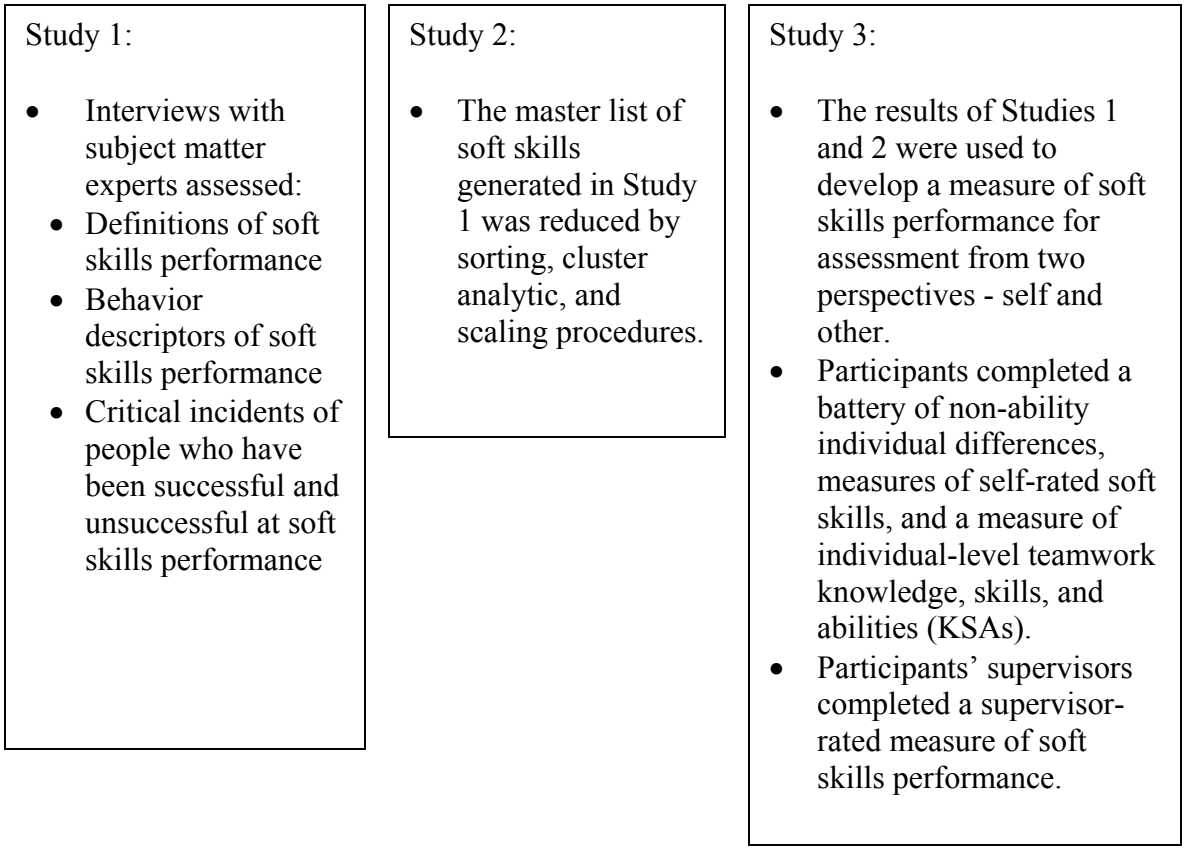

Figure 1. Description of the Current Set of Studies

CHAPTER 2

LITERATURE REVIEW

Theory and research on job performance lacks clarity as to the structure and measurement of job performance (Campbell, 1990). Research attention has focused on the predictor side of the performance model (see Kanfer & Kantrowitz, 2002 for a review), but research on the criterion side is more limited. Campbell (1990) has noted that of the parameters in the classic prediction model (whereby cognitive ability and motivation predict job performance, Campbell & Pritchard, 1976), performance has been the most ignored. Recent theoretical and empirical work, however, has expanded our understanding of the job performance domain. Campbell and colleagues (Campbell, 1990, Campbell, Gasser, & Oswald, 1996) proposed a job performance taxonomy consisting of eight dimensions. In addition, Borman and Brush (1993) derived categories of management performance by sorting critical incidents.

Embedding Soft Skills Performance into the Domain of Job Performance

The performance criterion domain has been defined different ways, including the aggregate of behaviors over time, tasks, or people (Campbell et al., 1996) and standards that can be used as yardsticks for measuring employees' success or failure (Bass, 1990). The challenge to researchers and practitioners is to develop theories, concepts, and measurements that will achieve the objectives of enhancing the utility of available

procedures and programs and deepening our understanding of the psychological and behavioral processes involved in job performance (Cascio, 1998).

I believe that theories of job performance should seek to keep pace with changes in the workplace and economy. Similarly, employees should seek to keep pace with changes in the nature of work in order to effectively perform their jobs and meet organizational goals. Reich (1992) identified three broad categories that describe work in the emerging global economy and suggested that these broad categories account for three out of four jobs in the United States. The first category is routine production work, which requires employees to read, perform simple computations, and follow instructions. Routine production work is declining quickly and currently makes up 25% of American jobs (Reich, 1992). While this type of work is on the decline, Lawler, Mohrman, and Ledford (1995) reported that 68% of Fortune 1000 companies use teams, even in the production/manufacturing sector, suggesting that working with others is important for this type of work. The second category is in-person service work, which requires the employee to engage in simple and repetitive tasks and to engage in effective person-to-person encounters. This category of work currently comprises approximately 30% of American jobs and is growing rapidly (Reich, 1992). The final category is symbolic-analytic services, which requires the employee to identify and solve problems, manipulate symbols and data, effectively use written and oral communication, and use and understand visual representations. Currently, about 20% of American workers hold such positions (Reich, 1992). More recent statistics indicate that the positions in the American workforce that employ the most people are in the service sector. In 2003 the industries and positions that employed the greatest number of workers were retail

salespersons, cashiers, general office clerks, hand laborers and material movers, registered nurses, waiters and waitresses, janitors and cleaners, and food preparation and serving workers (Occupational Employment Statistics, 2003)

Recently, job performance has been conceptualized in terms of task and contextual performance (Borman & Motowidlo, 1993; Motowidlo, Borman, & Schmit, 1997). Task performance, or prescribed behavior, represents the core technical activity of the organization (e.g., making widgets). Task performance can be further differentiated into two classes of behavior. One class consists of activities that directly transform raw materials into the goods and services that the organization produces. A second class consists of activities that service and maintain the technical core by replenishing its supply of raw materials, distributing its finished products, and providing important planning, coordination, supervising, and staff functions that enable it to function effectively and efficiently (Motowidlo & van Scotter, 1994). Contextual performance, or discretionary behavior, represents the performance components that support the organizational, social, and psychological environment in which the technical core must function. Extra-role behavior, or the idea of going beyond the boundaries of one's roles and responsibilities, describes contextual job performance. The distinction between task and contextual performance has brought about a broader examination of performance criteria (Borman & Motowidlo, 1993), which calls for further delineation of the performance domain.

In line with keeping pace with shifts in the nature of the workplace, soft skills performance fits well with the broad definition of job performance provided by Cascio (1998) as "observable things people do that are relevant for the goals of the

organization." Soft skills performance, whether productive (e.g., developing rapport with co-workers) or counterproductive (e.g., undermining others' authority), describes observable behaviors that advance organizational and individual agendas and goals. Soft skills performance fit into Campbell's (1990) taxonomy of higher order performance components (e.g., *facilitation of peer and team performance* – the degree to which the individual supports his or her peers and how well an individual facilitates group functioning and by being a good model, and *supervision/leadership* - proficiency in the supervisory component, including all behaviors directed at influencing the performance of subordinates through interaction and influence).

The broadening of the performance domain to include interpersonal components suggests an expanding role for theory and research on the predictors and dimensions of soft skills performance. Soft skills are complementary to other constructs in the performance domain, such as task and contextual skills. Task performance refers to technical, core elements of job performance and contextual performance refers to discretionary, extra-role elements of job performance. Soft skills performance centers on inter/intrapersonal effectiveness in work relationships, communicating ideas effectively, planning and organizing work, and solving problems and making decisions. In contrast to task skills (using technical information and procedures, handling information, and making decisions related to core technical functions, Motowidlo, Borman, & Schmit, 1997) and contextual skills, (skills in carrying out actions known to be effective for handling situations that call for coordinating with others, Motowidlo et al., 1997), soft skills refer to non-technical skills performed in the intra- and inter-personal domains that facilitate the application of technical skills and knowledge.

Soft skills are broadly applicable to a variety of jobs. For example, it is illustrative to compare and contrast the skills needed for effective job performance for two very different jobs in the service/knowledge work arena: a surgeon and a computer technician (see Boyatzis, 1982 for a full description). First, in terms of task skills, each must have the skill to diagnose a problem of the system they are treating, possess fine psychomotor skills to operate with precise movements in small spaces, and take initiative to find additional information needed to solve problems to repair or maintain the system on which they are working. However, a surgeon works in conjunction with other surgeons, nurses, and an anesthesiologist, while a computer technician often works alone (Occupational Information Network [O*Net], 2004). As such, a surgeon needs skills related to performing effectively in a team during an operation (i.e., O*Net, 2004). The surgeon needs to effectively build rapport with other members of the surgical team and build and maintain relationships. A computer technician needs intrapersonal/self-management skills in order to regulate impulsive tendencies, follow through on commitments, hold him/herself accountable, and tolerate stress.

Conceptualizations of Soft Skills Performance and Related Areas

Many soft skills (e.g., assertiveness, negotiation, listening) are comparable in their reliance on straightforward cognitive content (Gist & Stevens, 1998). That is, the component complexity (the number of rules or parameters) and coordinative complexity (sequences that are followed) are straightforward. In a study by Gist and Stevens (1998), trainees reported that learning these skills is "intuitively obvious". However, soft skills are often difficult to apply because of inconsistent information processing demands.

Skills are applied in human interactions that are characterized by variable or conflicting verbal and nonverbal communications. Interpersonal stimuli (e.g., prompts, opportunities, threats) are often subtle, ambiguous, and emotionally stressful (Stevens & Gist, 1997). Two conceptualizations of areas related to soft skills performance have been proposed. These conceptualizations focus on management competence (Boyatzis, 1982) and individual-level teamwork knowledge, skills, and abilities (Stevens & Campion, 1994, 1999) and are discussed below.

Boyatzis (1982) was among the first to comprehensively describe and study the topic of managerial competencies. He suggested that while some jobs (e.g., salesperson, controller) allow for easy assessment of performance because performance measures and goals are available, effectiveness in other jobs (e.g., research and development, employee relations specialist) do not provide easy access to measures of performance. He argued that effective job performance, defined as the "attainment of specific results (i.e., outcomes) required by the job through specific actions while maintaining or being consistent with policies, procedures, and conditions of the organizational environment" (p. 12), can be obtained through competencies in areas such as leadership, knowledge, direction, and goal management. The objective of his study was to generate a list of every competency that had been shown to relate to effectiveness as a manager, regardless of the specific job and the organization. Skills were included in a competency cluster if (1) the skill had distinguished effective performance in a job with statistical significance and (2) the characteristic was not unique to the specific product or service that the organization provided. Discriminant function analysis was used to examine the joint impact of the competencies on performance. Boyatzis (1982) found that the integrated

set of competencies effectively differentiated superior, average, and poor managers. The set of competencies accounted for 27% of the variance in the performance measures. This suggests that about one-quarter of the variance in performance of a manager could be accounted for by generic management competencies.

Using multiple methods to study competencies, including projective tests, job element analysis, and critical incident interviewing, Boyatzis found evidence for 6 clusters as shown in Table 1. They include *goal and action management, leadership, human resource management, directing subordinates, focus on others, and specialized knowledge*. These basic functions of management jobs can be described in terms of planning, organizing, controlling, motivating, and coordinating (Boyatzis, 1982). He suggested that while human resources systems are long-perceived as being difficult to quantify, there is a need to develop more rigorous assessment methods and techniques.

Table 1. Summary of Competencies, Dimensions, and Associated Skills from Boyatzis (1982)

Goal and Action Management	**Leadership**	**Human Resource Management**	**Directing Subordinates**	**Focus on Others**	**Specialized Knowledge**
Efficiency orientation	Self-confidence	Use of socialized power	Developing others	Self-control	*(contextualized job-specific knowledge)*
Proactivity	Use of oral presentations	Positive regard	Use of unilateral power	Perceptual objectivity	
Diagnostic use of concepts	Logical thought	Managing group processes	Spontaneity	Stamina and adaptability	
Concern with impact	Conceptualization	Accurate self-assessment		Concern with close relationships	

Also in the early 1980s, Bray and Howard (1983) took a different approach to studying managerial competencies. They were interested in studying personality via the assessment center method. The Bell Telephone system carried out two large-scale studies of managerial lives (Management Progress Study [MPS] and Management Continuity Study [MCS]) to advance basic research. The main goal of the MPS was to collect the personality information on incumbent managers that were thought to be important for managers and to follow-up with them 8 and 20 years after initial data collection. The intent of the MCS was to study the lives and careers of young managers expected to move up the organizational hierarchy and included data from more women and minorities than the MPS. Across both studies, Bray and Howard (1983) reported on the importance of two motives/traits: need for advancement (the motivation to advance in management faster and further than one's peers) and inner work standards (having one's own high standards of work performance even though a lesser level might be sufficient to satisfy one's superiors in the organization or others). Need for achievement had the

highest correlation with management level twenty years after original assessment (r = .34); inner work standards correlated with management level (r = .16).

In the teamwork domain, Stevens and Campion (1994, 1999) proposed a taxonomy of individual-level teamwork knowledge, skills, and abilities and developed a measure for staffing work teams. This taxonomy describes 5 dimensions: *conflict resolution* (the ability to manage effectively and resolve conflicts), *collaborative problem solving* (recognizing problems and involving team members by encouraging generation of alternative solutions), *communication* (establishing communication networks, having an informal and relaxed communication style, effective listening, appropriate nonverbal communication), *goal setting and performance management* (establishing specific, challenging, and accepted goals; monitoring, evaluating, and providing feedback to the group), and *planning and task coordination* (coordinating activities and information; establishing task and role expectations). This taxonomy was used to design a test that focused on teamwork knowledge. Situational questions were developed where hypothetical teamwork situations are presented. Respondents indicated what they would do in each situation by choosing from a multiple-choice list of options. Two validation studies were conducted involving production employees (pulp mill workers [N = 70] and cardboard box plant workers [N = 72]). The teamwork test, a battery of employment aptitude tests (i.e., tests of verbal ability, e.g., Flanagan Industrial Test; tests of quantitative ability, e.g., Science Research Associates' Arithmetic Index; tests of perceptual speed, e.g., Employment Aptitude Survey [#3, Form A]; and tests of mechanical ability), and supervisory ratings were collected. Results showed criterion-related validity of the teamwork test with ratings of teamwork performance (r = .44), task

performance (r = .56), and overall job performance (r = .52). However, a key unexpected finding was the large correlation with employment aptitude tests (r = .81) suggesting that the teamwork test has a substantial general mental ability component. Their findings suggest that KSAs associated with working with others (an aspect of soft skills performance) relate to performance effectiveness.

A recent study by Chen, Donahue, and Klimoski (2004) used the framework of transportable individual-level teamwork knowledge, skills, and abilities (KSAs) developed by Stevens and Campion (1994). Chen et al. (2004) examined different types of skills in a team environment for a sample of college students. Results obtained showed that teamwork knowledge and skills (as measured by the teamwork test, Stevens & Campion, 1999) significantly increased (t = 1.80, p < .05) after taking a course designed to assist students with acquiring the KSAs needed to meet challenges of working in organizational teams, but teamwork-related attitudes and self-efficacy did not.

Although the studies that have examined related domains of soft skills performance (managerial competencies and teamwork knowledge, skills, and abilities) have validated their frameworks and measures using managers (Boyatzis, 1982), production workers (Stevens & Campion, 1999), and college students (Chen et al., 2004), no information exists currently for workers in other areas of the workforce. The current studies seek to describe and explore soft skills more broadly using a sample of working students. The use of a working student sample in the current research strikes a balance between comprehensively assessing the predictor and criterion domains and generalizing findings to the broader population of workers.

The current studies draw on the taxonomies developed by Boyatzis (1982) and Stevens and Campion (1994) in terms of developing a taxonomy of soft skills performance. Both of these taxonomies specify the skill sets that constitute effective job performance in the inter- and intra-personal domains. Specifically, the common themes in these frameworks suggest that soft skills may be categorized in terms of four categories, namely, leadership/people/relationship skills, communication, management/organization, and cognitive skills and knowledge. That is, these taxonomies broadly describe skills related to leading and interacting with others, communicating, managing and organizing, solving workplace problems and making decisions. However, hypothesizing these four categories of soft skills was preliminary since the methodology in the current set of studies used a bottom-up approach to examining the dimensions of soft skills. Each of these categories of soft skills is discussed in more detail next.

Leadership/People/Relationship Skills

Working with others is critical for many jobs, including managers (Hall & Cockburn, 1990), health care workers (Browne & Elmore, 1982), and teachers (Taylor, Cook, Green, & Rogers, 1988). Leadership/people/relationship skills (e.g., delegating, coaching) describe skills related to interactions with others (Ferris, Perrewe, Anthony, & Gilmore, 2000). Although the interpersonal skill of communication has long been associated with performance effectiveness (e.g., Conrad, 1999), other social skills such as facilitating, coaching, influencing, and coordinating with others are more recently being recognized as important (Ferris et al., 2000). Leadership/people/relationship skills are

those needed to negotiate with others, to participate as a member of a team, to serve clients and customers in a way that meets their expectations, and to resolve conflicts.

Leadership/people/relationship skills have often been studied in the context of assessment centers. Assessment centers typically employ several exercises that simulate interpersonal (e.g., role-play exercise) or problem-solving (e.g., in-basket exercise) tasks frequently performed by managers (Bray & Howard, 1983). Assessees' scores are based on ratings of behaviorally defined dimensions, such as communication, interpersonal skills, leadership, planning, and problem solving (Spector, Schneider, Vance, & Hezlett, 2000). Bray, Campbell, and Sechler (1974) conducted the first assessment center studies, studying the skills and abilities related to achievement in middle management at AT&T. Skills related to success included, for example, decision making, creativity, planning and organizing, human resources skills, and oral communication. More recently, Spector et al. (2000) used a subordinate-meeting role play exercise where assessment center participants assumed the role of a manager, and an assessor played the role of a subordinate. The assessee delivered negative feedback while simultaneously gaining commitment for development actions from the direct report. The role play exercise was one of several assessment center exercises, including in-basket exercises, structured interview, leaderless group discussion, project presentations, project discussions, and team discussions. Spector et al. (2000) found that role-play performance as rated by assessment center examiners correlated significantly and positively with structured interview ($r = .17$), in-basket coaching ($r = .19$), project presentation ($r = .14$), and project discussion rating scores ($r = .11$, all $p < .05$).

Mumford, Zaccaro, and colleagues (Connelly, Gilbert, Zaccaro, Threlfall, Marks, & Mumford, 2000; Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000) recently studied the domain of leadership skills. Mumford et al. (2000) proposed a capability model of leadership skills and suggested that leaders' complex problem solving skills, knowledge, and social judgment skills influence quality of problem solving and subsequent performance. One important skill when implementing solutions is knowledge of the subordinates, peers, and superiors with whom the leader is interacting. Connelly et al. (2000) studied problem solving, social judgment, and leader knowledge as predictors of leader achievement and quality of solutions among a sample of Army officers. They found that leader skills significantly and positively correlated with leader achievement (r = .45), and that leader skills significantly accounted for variance in solution construction (i.e., a constructed response measure designed to tap leaders' skills in attending to situational restrictions critical in problem solving, such as the time frame for solving the problem and the nature of the leader's personal and/or organizational goals. β = .54).

In sum, skills related to leading, interacting, and developing relationships are important to the domain of soft skills because they aid in helping individuals and organizations accomplish goals. That is, they assist in delivering information or services to customers and co-workers, working effectively as a member of a team, and inspire confidence of supervisors and management (Conrad, 1999). Findings indicate that effective performance in this area relates to distal organizational outcomes, such as managerial success (Bray et al., 1974) and leader achievement (Connelly et al., 2000). As such, leadership/people/relationships skills are hypothesized to be a major component of the soft skills criterion space.

Communication Skills

Communication skills are associated with listening, presenting, verbalizing, and nonverbal communication (Riggio, 1986). Many social skill researchers agree that the basic sending and receiving of information represent key social skills. Indeed, Hall (1979) divided social communication skills into two broad classes of sending and receiving. Skills in sending and receiving information are represented in the basic social skills of *expressivity* and *sensitivity*. Riggio (1986) explored such basic areas of communication to develop a measure to assess social and communication skills (the Social Skills Indicator [SSI]), and found that higher scores on the SSI related to job performance.

Communication skills are also competencies often measured in assessment centers (Bray, Campbell, & Grant, 1974), and have been identified as competencies related to management success (Bray et al., 1974). Communication skills are often assessed with in-basket exercises (e.g., Arthur, Woeher, & Maldegen, 2000). Communication skills have been studied in the context of predicting who emerges as a leader and in determining the effectiveness of leaders. Riggio, Riggio, Salinas, and Cole (2003) recently investigated the role that social/communication skills play in leader effectiveness. Riggio et al. (2003) administered a series of personality measures to undergraduates prior to grouping participants in small groups. Groups were presented with scenarios in which they had to find a solution (e.g., being a passenger on an airplane that had just crash-landed in the desert), and chose a leader from each group to present the solution. They found that groups chose leaders who were higher in levels of

communication skills (as measured by the communication scale of the SSI, Riggio, 1986, $r = .46$, $p < .05$). In another study, Tate, Foulkes, Neighbour, Campion, and Field (1999) developed a methodology to assess medical doctor candidates' communication skills performance using videotaped consultations of actual patient-physician encounters. The methodology required candidates to provide evidence of his/her competence by selecting appropriate patient encounters that fulfill performance criteria. The intention of the methodology was to encourage learning and teaching of communication skills by making it a part of the exam. Across these various studies, communication skills have been found to be influential in managerial success, leader emergence, and job performance. As such, skills associated with sending and receiving information through verbal and nonverbal means are thought to be critical success factors in soft skills performance.

Management/Organization Skills

Management and organization skills (e.g., assessing cost effectiveness, delegating tasks) are core managerial skills (Bass, 1990). Boyatzis (1982) suggested that organization was one of the core managerial competencies, where organization is defined as the determination of what resources are needed and the structuring of work to accomplish plans. While some of these skills are traditionally associated with managerial performance (e.g., delegating tasks, evaluating others' performance), many skills (e.g., organizing tasks, regulating emotions) that relate the organization and regulation of one's performance are thought to be broadly applicable to successful soft skills performance.

These skills have been represented in the performance literature, for example, in terms of management/organization skills in: (1) the Campbell (1990) taxonomy of

higher-order performance dimensions and (2) Mintzberg's (1975) conceptualization of management roles. Campbell and colleagues defined management/organization skills as elements in management that are distinct from direct supervision, such as articulating goals, organizing people and resources, monitoring progress, and helping solve problems. No empirical information exists currently for the validity of the Campbell taxonomy of performance dimensions, but Campbell and colleagues (e.g., Campbell et al., 1990) reported that studies stemming from the Project A effort conceptually relate to the taxonomy of higher order performance dimensions. Similarly, Mintzberg (1975) sought to determine how managers spend their time, and he categorized managerial behavior in terms of ten basic roles. Using structured observation methods, his findings suggested that managerial activity is characterized by brevity, variety, and discontinuity. The roles he developed can be categorized in terms of decisional roles (resource allocation, disturbance handlers, entrepreneurs, and negotiation), informational roles (monitoring, dissemination, and spokesperson), and interpersonal roles (figurehead, leader, and liaison).

Job/career self-management, defined as strategies to exert control over aspects of career decision-making and behavior (Frayne & Geringer, 2000), can be conceptualized as a type of management/organization soft skill because it relates to *intrapersonal* competencies needed to be successful on the job. That is, employees are responsible for exhibiting skills related to regulation and management of their work and careers. Many companies are pursuing a human resources policy to shift accountability for career management from the employer to the employee by offering formal interventions such as training to help employees learn how to take greater responsibility for their own careers

(Kossek, Roberts, Fisher, & Demarr, 1998). Research (e.g., Frayne & Geringer, 2000) has suggested that career self-management enhances organizationally-relevant outcomes (e.g., job attendance, performance) as well as career-relevant knowledge and skills. Specifically, Frayne and Geringer (2000) found that individuals who attended career self-management training, when compared to a control group, showed improved job performance (F (1,58) = 63. 73, $p \leq .01$; $M_{\text{performance appraisal (training group)}} = 178.6$, $M_{\text{performance appraisal (control group)}} = 135.2$). Performance improvement continued with time, and increases were sustained across a 12-month period post-training. Self-management training has been seen as influencing a set of behaviors and cognitive strategies that assist individuals in structuring their environments, establishing self-motivation, and facilitating behaviors appropriate for attaining performance standards (Frayne & Geringer, 2000).

Theory and research in the area of management/organization skills suggests that skills associated with effectively managing and organizing one's tasks and career, setting goals, and overseeing others' performance is related to overall job performance (e.g., Boyatzis, 1982, Frayne & Geringer, 2000). This area emphasizes both inter- and intra-personal aspects of soft skills performance, and is hypothesized to be another major domain of soft skills.

Cognitive Skills and Knowledge

Skills related to creative thinking, making sound decisions, and solving workplace problems are conceptualized as cognitive skills and knowledge in the soft skills domain (Conrad, 1999). Skills in this area can be conceptualized as applied cognitive skills (i.e., problem solving and decision making in the context of individual and team encounters,

Holzer et al., 2004). That is, cognitive skills and knowledge in the soft skills domain take into account interpersonal cues and sensitivities to make decisions and solve problems that are in the best interest of employees and organizations.

Assessment centers commonly assess cognitive skills and knowledge via in-basket exercises. Management games (Kesselman, Lopez, & Lopez, 1982) have also been used to assess cognitive skills related to managerial success. A management game is a decision-making exercise in which the participant is placed in a standardized task situation structured around some aspect of a position for which he or she is being assessed. The method provides a way for observing his or her behavior and recording results. Some management games (e.g., role playing) place a premium on the candidate's ability to interact successfully with others in a group. Kesselman et al. (1982) found that problem solving, decision making, and planning scores (as assessed by an in-basket exercise) were positively related to overall job performance ($r_{\text{problem solving, performance}} = .68$, $r_{\text{decision making, performance}} = .69$). Spector et al. (2000) asked assessment center participants to play the role of a key manager in a simulated business organization, faced with demands, problems, and tasks similar to those encountered on the job. Assessees read and responded to items that could appear in a manager's in-box. They hypothesized that since in-baskets require assessees to organize and process information and to make plans and decisions in written form, performance would be related to problem-solving. Indeed, they found that in-basket performance significantly and positively correlated with management potential scores ($r = .15$, $p < .05$). Research in this area has been conducted in the area of managerial potential, and little evidence exists for other areas of the

workforce. Nonetheless, cognitive skills and knowledge are thought to be an important part of the soft skills criterion space.

Soft skills performance is also a fruitful area to examine the relationships between non-ability traits and performance because it is an area of performance where these traits could show more substantial relations than is generally observed in other areas of performance. Medium- sized relationships between non-ability traits and soft skills performance are anticipated because the relationship between predictor and criterion is matched in terms of Brunswik symmetry (i.e., symmetry between predictors and criteria measures, Wittman & SüB, 1999). Furthermore, soft skills performance as a less-constrained/more discretionary type of performance should allow for greater expression of non-ability individual differences, than in more prescribed task performance. The focus on skills such as leadership/people/relationships, communication, management/organization, and cognitive skills and knowledge provides a domain in which to study personality and motivational predictors. The next section describes: (1) issues related to examining the predictive validity of non-ability individual differences for performance and (2) literature describing personality and motivational variables that relate to performance.

Personality and Motivational Predictors of Soft Skills Performance

The review of proposed dimensions of soft skills performance suggests that non-ability individual differences (e.g., personality, motivation) should be significantly associated with soft skills. For example, interpersonal skills have been shown to be related to personality dimensions such as extroversion and agreeableness (e.g., $r_{extroversion,}$

$_{\text{interpersonal skills}}$ = .33; $r_{\text{agreeableness, interpersonal skills}}$ = .19, Riggio et al., 2003) since those variables relate to functioning in interpersonal domains. The purpose of this section is to more thoroughly explore relationships between non-ability traits and soft skills.

In conducting research on the predictive validity of various traits, industrial/organizational (I/O) psychologists seek to answer two fundamental questions: (1) What role do traits play in determining job performance, and (2) How may theories and tests be used to improve predictions of person-job fit? Answers to these questions have theoretical implications for the development of theories of work behavior and job performance, as well as practical implications for the development of effective personnel selection, training, and placement systems in organizational settings. The broadening of performance criteria to include relational dimensions (Motowidlo & Van Scotter, 1994) suggests an expanding role for theory and research on non-ability predictors of performance. Knowledge of individual differences such as personality dimensions supports personnel decisions such as promotion to leadership roles and selecting employees to work in teams (c.f., Hogan, Hogan, & Roberts, 1996).

Recently, researchers have called for further research on the role of individual differences in performance to provide theoretical substantiation for the meta-analytic findings between personality and job performance (Hogan & Holland, 1998). Hogan and Holland (1998) suggested that "a theory of individual differences in work effectiveness that links assessment to performance would enhance the value of personality measures for forecasting occupational outcomes" (p. 100). A variety of domains of individual differences variables influencing job performance have been proposed, ranging from cognitive ability (e.g., Ree & Earles, 1994), job knowledge (e.g., Hunter, 1983),

personality (e.g., Gellatly, 1996), and goal orientation (e.g., VandeWalle, Brown, & Cron, 1999). Research and theory on individual differences that may affect performance outcomes have historically focused on cognitive ability (c.f., Ackerman & Humphreys, 1990). Ghiselli and Barthol (1953), however, published the first major review of I/O psychology studies investigating the validity of personality tests for selection purposes in industry. The authors reported substantial differences in both the number of studies within each occupational group as well as in the effectiveness of personality measures for predicting performance within each occupational group.

The use of personality tests for employment purposes waxed and waned for much of the twentieth century. Studies of personality-performance relations were often only loosely related to personality theory. Reviews of the predictive validity of personality tests for job performance remained generally pessimistic (e.g., Ellis & Conrad, 1948; Guion & Gottier, 1965; Schmitt, Gooding, Noe, & Kirsch, 1984). The dearth of research on non-ability predictors was attributed in large measure to early reviews by Ellis & Conrad (1948) and Guion and Gottier (1965) suggesting that the lack of attention to the theoretical links between the predictor and criterion constructs made it difficult to draw substantive conclusions. Specifically, Ellis and Conrad (1948) concluded that "personality inventories prove generally ineffective for predicting performance measures" (p. 421).

Beginning in the early 1980s, however, interest in personality trait prediction of work behavior and performance blossomed (c.f., Weiss & Adler, 1984). The major forces underlying the renewal of interest in personality research were new theoretical developments in personality psychology. In particular, the rising popularity of the Five

Factor Model (FFM) of personality (Digman, 1990; Goldberg, 1990) and the development of a multidimensional personality inventory designed to assess these factors set the stage for significant progress in re-evaluation of the predictive validity of personality traits for employment purposes.

Research devoted to the development of a taxonomy of personality traits has identified five broad dimensions of personality: neuroticism, extroversion, openness to experience, agreeableness, and conscientiousness (e.g. Digman, 1990, Goldberg, 1990). *Neuroticism* refers to the extent to which an individual displays anxiety, anger, hostility, self-consciousness, impulsiveness, vulnerability, and depression. *Extroversion* refers to the extent to which an individual is outgoing, active, and high-spirited. Individuals with high levels of *openness to experience* typically display imagination, curiosity, originality, and are open-minded. Individuals with high levels of *agreeableness* tend to be courteous, flexible, trusting, good-natured, cooperative, forgiving, empathic, soft-hearted, and tolerant. Individuals with high levels of *conscientiousness* are dependable, careful, thorough, responsible, organized, efficient, planful and have a high will to achieve. With the surge of research on non-ability variables brought about by the FFM (Goldberg, 1990) contemporary theory recognizes the important contribution of non-ability variables to the prediction of performance.

Matching Predictor with Performance Criteria

The importance of including non-ability individual differences in the prediction of soft skills performance can be examined in the context of appropriately matching predictor and criterion variables. The selection of non-ability traits to examine the role of

person factors in soft skills performance stems from the idea that soft skills performance is better suited to typical than maximal performance assessment (see Ackerman, 1994; Cronbach, 1990). I propose that individual differences associated with being interpersonally sensitive, outgoing, and achievement-oriented will predict performance in this context. In technical or task performance, general cognitive ability (a measure of maximal performance) generally accounts for the majority of variance (e.g., Kanfer & Ackerman, 1989). That is, ability predicts performance for tasks that are cognitively demanding, novel, and involve heavy reliance on memory. Maximal behavior measures such as tests of cognitive ability elicit maximal performance from respondents told to "do your best." Typical behavior measures, such as personality tests, ask respondents to state preferences for what is most typical of them. That is, what an individual "can do" generally differs from what an individual "will do" (Sackett, Zedeck, & Fogli, 1988).

From a conceptual perspective, selecting appropriate predictor and criterion variables has implications for maximizing validity. That is, matching predictor and criterion in terms of content and breadth will maximize prediction (i.e., Brunswik symmetry; Wittman & SüB, 1999). As such, non-ability traits should appropriately match the criterion evaluated in the present research, such as communication skills and interpersonal skills.

Personality Predictors of Performance

The changing outlook with respect to the predictive validity of non-ability measures for performance stems in part from recent meta-analytic studies that organize non-ability predictors according to the FFM of personality (e.g., Barrick & Mount, 1991;

Salgado, 1997). However, little research has examined the role of individual differences predictors in the context of soft skills performance. Riggio et al. (2003) for example, investigated how personality is related to ratings of leader effectiveness, and found that those higher in levels of extroversion were rated as better leaders (r = .33). Knowledge of the traits, attitudes, and dispositions that predict performance in this domain could help inform research and theory about a potentially alternative set of predictors than is commonly seen in technical job performance (e.g., ability, job knowledge, conscientiousness; see e.g., Barrick & Mount, 1991, Schmidt & Hunter, 1998). As such, an aim of the current studies is to determine whether the non-ability predictors of task-oriented performance also play a role in predicting soft skills performance.

With the recognition of the contribution personality can make in the prediction of job and training performance (particularly over and above cognitive ability), in combination with the contemporary psychometrically-derived description of personality (FFM, Goldberg, 1990), greater research attention has been given to the role of personality in predicting organizationally-relevant outcomes. Personality has been hypothesized to relate to performance due to its direct influence on proximal motivational processes (Kanfer, 1990). That is, personality may exert its role in performance by mobilizing the direction, intensity, and persistence of behavior. Recent hypotheses stemming from an expectancy-valence framework (Vroom, 1964) suggest that personality influences performance because: (1) individuals are able to see a relationship between effort and progress and (2) outcomes that can be attained from such progress are valued (Colquitt & Simmering, 1998). In the training field, Herold, Davis, Fedor, & Parsons (2002) recently argued that personality can exert direct effects as well as

interactive effects, such that higher levels of some personality variables (e.g., conscientiousness) may counter effects of lower levels of other personality variables (e.g., emotional stability).

As noted by Kanfer and Kantrowitz (2002), meta-analytic findings for personality-performance relations over the past 12 years show small-to-moderate-sized predictive validities for conscientiousness (ranging from .12 to .31). In addition, extroversion and emotional stability showed moderate validities for job performance (ranging from .09 to .16 for extroversion and ranging from .08 to .22 for emotional stability). Taken together, these findings suggest that individuals who report higher levels of conscientiousness, higher levels of extroversion, and lower levels of emotional distress are likely to show higher levels of technical job performance. Personality dimensions hypothesized to relate to soft skills performance are discussed below. Evidence from the task and contextual performance domains is discussed.

Conscientiousness has been most extensively studied since it has been consistently shown to predict work outcomes such as performance and training (e.g., $\hat{\rho}_{\text{conscientiousness-job performance}} = .22$, Barrick & Mount, 1991). Traits related to being industrious and achievement-oriented are generally positively related to job performance because individuals high in these traits are willing to put forth the level of effort needed to accomplish goals; that is, they are motivated to perform well (Mount & Barrick, 1995). McCrae and John (1992) suggested that higher levels of conscientiousness relates to being efficient, planful, thorough, responsible, organized, and reliable. They are likely to persevere and more effectively engage in self-discipline (Colquitt & Simmering, 1998) and be more proactive and effective in goal-setting (Barrick, Mount, & Strauss, 1993;

Gellatly, 1996) than individuals low on conscientiousness. For instance, Witt, Kacmar, Carlson, & Zivnuska (2002) found that conscientiousness was significantly related to interpersonal facilitation (a facet of contextual performance, $\beta = .29$) and accounted for incremental predictive validity ($\Delta R^2 = .04$) beyond age, gender, agreeableness, emotional stability, extroversion, openness to experience, and organization politics. Although the effects obtained by Witt et al. (2002) are small, they suggested that conscientious workers are likely to listen and attend to the details important to others and respect social protocol. In a meta-analysis, Hogan and Holland (1998) found that conscientiousness (operationalized as prudence in the Hogan personality framework, Hogan & Hogan, 1995) was significantly and positively related to both "getting ahead" ($\hat{\rho} = .31$; analogous to task performance) and "getting along" ($\hat{\rho} = .21$; analogous to contextual performance).

While the predictive validities of agreeableness and extroversion have been studied less extensively in the performance domain, they are thought to exert substantial influences (medium-sized effects, i.e., $r = .30$, Cohen, 1992) in soft skills performance. Work contexts having a high level of interpersonal interaction require selflessness, tolerance, and flexibility (Witt, Burke, Barrick, Mount, 2002). In a meta-analysis of studies looking at samples of employees working in teams or dyadic service jobs, Mount, Barrick, & Stewart (1998) found that individuals high on agreeableness tended to receive higher supervisory ratings ($\hat{\rho}$'s ranged from .09 to .24 for samples of manufacturing employees working in teams and $\hat{\rho}$'s ranged from .03 to .16 for samples of employees working in dyadic service jobs). Hypothesizing that interactive effects between conscientiousness and agreeableness explain more variance in performance than either

variable on its own, Witt, Burke, Barrick, & Mount (2002) found that for highly conscientious workers, those low in agreeableness were found to receive lower performance ratings than workers high in agreeableness. For example, when conscientious individuals are also highly disagreeable (i.e., vengeful, hostile, inconsiderate, uncooperative, or aloof), they are likely to lack important interpersonal skills. The agreeableness-conscientiousness interaction term was related to performance ranging from r = .14-.28 across seven samples. Similarly, Salgado (1997) suggested that agreeableness may be important for performance situations that require substantial social interaction. The interpersonal aspects assessed by agreeableness may capture success in such situations.

Extroversion has been discussed as one of the most important personality variables in predicting job performance. Individuals characterized as outgoing, sociable, and gregarious are thought to report higher levels of soft skills given the proclivity of such individuals to have high levels of positive affect (e.g., r = 58, Watson & Clark, 1992). However, based on evidence of a negative relationship between extroversion and intelligence (e.g., Ackerman & Rolfhus, 1999; Rolfhus & Ackerman, 1999), higher levels of extroversion may negatively relate to technical job performance. Furthermore, high levels of extroversion may be indicative of impulsivity, which could render negative effects on some aspects soft skills such as communication skills.

In contrast to individual differences in personality that are conceptualized as stable tendencies that describe individuals across a variety of situations, motivational predictors relate to action tendencies in achievement situations, and are discussed next.

Motivational Predictors of Performance

Over the past three decades, progress has been made in two disparate approaches to understanding motivation. One approach emphasizes individual differences in traits and dispositional tendencies as they influence goal choice and behavior. A second approach emphasizes the processes and mechanisms by which individuals accomplish goals. Examination of the linkages between motivational traits (e.g., need for achievement, competitiveness) and goals has been explored in the education domain (e.g., Dweck, 2002). Results show that approach-oriented traits (e.g., learning goal orientation, need for achievement) are significantly related to specific, productive goals and better performance (e.g., $r_{\text{achievement-performance}} = .24$, Brown & Kirk, 2003). Investigating these relations in the workplace has implications for understanding how worker motivation influences job performance.

Motivational Traits

Two broad motivational traits proposed by Kanfer and Heggestad (1997), achievement and anxiety, refer to general motivational dispositions. Achievement and anxiety are conceptualized as distal traits and are considered broad, stable, and trans-situational in nature.

Achievement is conceptualized as an approach-oriented trait related to learning and mastery. The expression of individual differences in achievement is posited to occur through motivational processes, and only in the presence of opportunity. Individual differences in achievement are not expected to influence task choice and persistence in settings where rewards or incentives are aversive or absent, or when goal choice and

striving are constrained. Two distinct aspects of the achievement construct exist: achievement with respect to personal excellence and task mastery and achievement as reflected in competitive excellence and comparative performance. Anxiety describes individual differences in dispositional tendencies toward the experience of negative emotionality and subjective distress across a broad range of situations. Anxiety is conceptualized as a constellation of traits related to fear of failure, general anxiety and test anxiety (Kanfer & Heggestad, 1997). Fear of failure is an aversive, avoidance-oriented trait that reflects a dispositional tendency to avoid goals or competitive situations that might indicate failure. General anxiety relates to individual differences in dispositional tendencies toward the experience of negative emotionality and subjective distress across a broad range of situations. The general anxiety trait encompasses the neuroticism trait from the FFM (Goldberg, 1990). Test anxiety refers to anxiety invoked in testing situations that lead to the engagement of a specific set of drives as well as a set of responses designed to reduce those drives. Individuals who exhibit worry, nervousness, temperamentalness, and self-pity will likely be less successful than more emotionally stable individuals in job performance because these traits tend to inhibit rather than facilitate the accomplishment of work tasks (Barrick & Mount, 1991).

Boyatzis (1982) reported that need for achievement significantly distinguished managers rated as average versus managers rated as superior (*t* value not specified, $p < .05$). Similarly, ambition (conceptualized as a facet of achievement) has been found to positively relate to contextual performance (e.g., $r = .17$, Hogan & Holland, 1998; $r = .18$, Hogan et al., 1998). People high in need for achievement have been shown to do well in jobs such as small business owner and sales, which provide the opportunity for

direct measurement of their actions and offer relatively rapid feedback on performance (McClelland, 1961 as reported in Boyatzis, 1982).

Proximal Motivational Processes and Relations to Performance

Individuals differ in the degree of confidence they possess for performing skills and the extent to which they decide to allocate motivational resources to performance. Proximal motivational processes (e.g., self-efficacy) are individual differences that relate to performance (e.g., Kanfer & Heggestad, 1997; 1998). In contrast to distal individual differences that are trait-like, proximal influences are self-regulatory (i.e., self-monitoring, self-evaluation, and self-reactions) processes that are task- and situation-specific. Self-regulation refers to the intrapersonal processes by which an individual exercises control over the direction, persistence, and intensity of thinking, affect, and behavior for the purpose of goal attainment (Kanfer & Kanfer, 1991).

Evidence on the mediating influence of proximal individual differences in personality-performance relationships has been a recent line of inquiry (e.g., Chen, Gully, Whiteman, & Kilcullen, 2000; Gellatly, 1996). Overall, studies have shown that variables such as self-efficacy, self-deception, goal orientation, goal choice, and performance expectancy often mediate the relationship between personality and performance. For example, Gellatly (1996) found that self-deception and self-efficacy mediated the relationship between conscientiousness and performance. Overall, this line of research has pointed out the proximal mechanisms by which traits influence performance.

Self-Efficacy

Self-efficacy, a construct derived from social-cognitive theory (Bandura, 1986), refers to an individual's belief that he or she is capable of performing well in a specific situation. In contrast to the distal personality dimensions, self-efficacy is thought to be a proximal personal determinant of one's ability to mobilize motivational resources (Bandura, 1986). Positive self-evaluations help direct the magnitude, direction, and intensity of goal-directed behavior (Kanfer, 1990). According to Bandura (1986), how people will behave can be better predicted by their beliefs about their capabilities than by what they are capable of accomplishing. Self-efficacy beliefs have been shown to impact many aspects of work behavior. Self-efficacy has significantly predicted academic performance (r = .19, Chen et al., 2000) and job search performance (r = .21, Kanfer, Wanberg, & Kantrowitz, 2001).

The predictor classes I have discussed are suggested to show medium effect sizes with soft skills performance. It is also helpful to consider how ratings of performance can differ by rating source. In the final section of the literature review I discuss literature on sources of performance ratings as they bear on the measurement of the tools of soft skills performance that I created.

Self and Other Ratings of Performance

To establish validity for a new measure of soft skills, it is important to test these skills in multiple domains of competence. This can be accomplished by demonstrating validity across raters (e.g., self vs. others) to assess differing perspectives concerning performance. There are cases when divergent performance information is useful for

examining the effectiveness of groups of job incumbents, organizational units or systems, or the total organization (Farr & Newman, 2001), such as personal/career development, selection/promotion, and fit and turnover.

One objective of the current studies is to compare self perceptions and supervisor perceptions of soft skills performance. As frequent observers of a person's work performance, supervisors are likely to be well-informed about a person's interpersonal effectiveness. It will be informative to know the degree to which outsiders' appraisals are consistent with self-appraisals. The degree of convergence will be used to evaluate the validity of the self-report measure of soft skills performance and also for illuminating any potentially interesting discrepancies between self and other ratings. Burhmester, Furman, Wittenberg, & Reis (1988) examined different domains of interpersonal competence in peer relationships, and found moderate levels of agreement between ratings of competence by college students and their roommates (r = .30). Interpersonal competence scores were also related in predictable ways to subject and roommate reports of masculinity and femininity, social self-esteem, loneliness, and social desirability. Based on findings of self-other perceptions of interpersonal competence (e.g., Buhrmester et al., 1988), it is expected that self and other ratings of soft skills will be moderately correlated with each other (e.g., r = .30).

In the applied domain, the issue of examining differences in rating sources is important in performance appraisal and multisource feedback. The literature shows that different rater groups (e.g., supervisors, subordinates) often produce different ratings of an individual's job performance (e.g., Ashford, 1989). Borman (1997) discussed possible reasons why raters from different perspectives might rate differently. One is that

supervisors, peers, and subordinates attend to different dimensions of performance. Borman (1997) argued that it may be appropriate and legitimate to expect various sources to produce somewhat different ratings, because of factors such as varying work demands or information environments. Evidence supports the idea that differences between rating sources exist (e.g., Pulakos, Schmitt, & Chan, 1996). Consistent with ideas presented by Boyatzis (1982) on managerial performance, theorizing on sources of performance ratings suggests that supervisors emphasize objective measures of performance, such as reaching goals (Rausch et al., 2002). When making self-evaluations, individuals may tend to rely on pre-existing self-schemas (Markus, 1989). Furthermore, as opposed to other sources of ratings (e.g., peers), meta-analyses of multisource performance feedback ratings have shown that supervisor ratings are more reliable than peer ratings (e.g., Conway & Huffcutt, 1997).

Based on traditional conceptualizations of reliability and validity, low interrater agreement indicates unreliability and invalidity. Bozeman (1997), however, suggested that performance ratings provided by different rater groups are role-related; that is, rater groups likely evaluate the aspects of an individual's performance that are most relevant to the raters. To account for this, Bozeman (1997) urged researchers to develop role-based appraisal processes that would include specific role-related questions targeted for various rater groups. If individuals are asked to rate themselves within specific roles, interrater agreement between self-other pairs would be more accurately assessed. As such, this method should yield positive intercorrelations between self and supervisor ratings. For the current study, two forms of a new measure of soft skills performance will be developed to assess self and supervisor ratings of soft skills.

CHAPTER 3

THE CURRENT INVESTIGATION

The Current Set of Studies

The current studies sought to: (1) investigate the dimensions of soft skills performance, (2) examine the individual differences variables that relate to dimensions of soft skills performance, and (3) develop a new measure of soft skills performance. The current studies accumulated behavioral exemplars and critical incidents of soft skills performance to investigate the underlying dimensionality of the soft skills domain. Personality and motivational individual differences were assessed to determine how these factors relate to soft skills performance.

The focus of these studies was the structure of soft skills performance and the construction of a measure of soft skills performance that was conceptually related to a variety of non-ability individual differences variables. The research was conducted using three studies. Study 1 involved the generation of soft skills performance behavior exemplars and critical incidents. Study 2 reduced the list of behaviors to underlying dimensions. Study 3 involved construction of a measure of soft skills performance and validation with non-ability individual differences and performance measures using a sample of working students and their supervisors.

The current studies have important scientific and practical value. While there is a vast amount of literature on task and contextual performance, little scientific research exists focusing on the non-technical core competencies for performance effectiveness. Examining a broad range of non-ability predictors is informative about the individual

differences traits that are related to soft skills. Given the lack of research in this area, some hypotheses were drawn from the technical performance literature to test whether the determinants of technical performance also play a role in predicting soft skills performance. These studies represented a first attempt at validating a new measure that balances the goals of generalizability to work settings and demonstration of criterion and construct validity. In terms of practical utility, these studies attempted to provide empirical evidence for what is meant by the term "soft skills." While people implicitly understand the concept of soft skills and related ideas discussed in the popular literature, such as people management capabilities (Douglas, 2003) and skills related to being a "team player" (Buhler, 2001), little to no research has provided evidence to support their existence.

Hypotheses

Dimensions of Soft Skills Performance and Relationships between Rating Sources

In Study 2, it was expected that participants would reduce the number of categories of soft skills generated in Study 1 to four dimensions. Based on the literature it was expected that the domain of soft skills performance would comprise skills related to communicating, interacting with others, organizing work, and solving problems and making decisions (e.g., Ferris et al., 2000, Kesselman et al., 1996, Mumford et al., 2000, Riggio et al., 2003).

H1: Soft skills were hypothesized to comprise four dimensions: leadership/people/relationship skills, communication skills, management/organization skills, and cognitive skills and knowledge.

In Study 3, it was expected that self- and supervisor-rated soft skills performance would show a medium-sized (i.e., r = .30) correlation. Consistent with research using self- and other-rated measures of interpersonal competence (e.g., Burhmeseter et al., 1988), a moderate-sized relationship between self-and other-rated soft skills performance was expected.

H2: $r_{\text{self-rated soft skills performance, supervisor-rated soft skills performance}} = .30$.

Relationships between Non-Ability Measures and Soft Skills Performance

The relationships hypothesized below are shown in Figure 2. Figure 2 shows that distal traits should influence self-efficacy, which should then influence soft skills performance. The theoretical arguments for linkages between traits and proximal processes are based on cognitive/information processing conceptualizations of motivation such as Kanfer's (1990) definition of motivation as the effects of three choices or decisions: (a) the decision to exert effort (direction); (b) the decision made as to the level of effort (level); and (c) the decision to persist at a given level of effort (persistence). Further, motivation theory (Kanfer, 1992) suggests that personality influences complex outcomes through motivational processes. That is, person antecedents should have a greater effect on the proximal, motivational processes than on the complex outcome (such as soft skills performance). It was anticipated that distal traits would be indirectly related to soft skills performance through self-efficacy. Figure 2 is consistent with the majority of models presented in the literature because the relationships between individual differences and performance are mediated by self-efficacy (e.g., Chen et al., 2000).

On the basis of previous job performance research (e.g., Hogan & Holland, 1998; Mount & Barrick, 1995; Witt et al., 2002), a small-to-moderate-sized positive correlation (i.e., r = .20-.30) is expected between personality and achievement-oriented motivational traits and soft skills performance. Personality traits (agreeableness, conscientiousness, extroversion) and achievement orientation traits (mastery, desire to learn, competitiveness) will be significantly and positively related to self-efficacy for soft skills performance.

Based on empirical evidence of motivational trait-performance relations (e.g., Brown & Kirk, 2003; Hogan & Holland, 1998), I expect motivational traits to show small-to-medium sized correlations with soft skills performance (i.e., r = .20-.30). Individuals high in achievement may seek to master core interpersonal job competencies and compete with others to advance to leadership positions. Individual differences in anxiety may help explain lower levels of soft skills performance.

H3: $r_{\text{personality, achievement traits, soft skills performance}} = .30$.

H4: $r_{\text{anxiety traits, soft skills performance}} = -.30$.

Because self-efficacy is proximally closer to the criterion than distal personality and motivational traits, the relations between self-efficacy and soft skills performance should be of greater magnitude. Previous research suggests that self-efficacy shows a medium effect size with performance criteria (e.g., Chen et al, 2000). Self-efficacy is hypothesized to be significantly and positively related to dimensions of soft skills performance.

H5: $r_{\text{self-efficacy, soft skills performance}} > r_{\text{personality/motivational traits, soft skills performance}}$

Kanfer and Ackerman's (1989) resource allocation view of motivation suggests that individual differences in traits create differences in total resource availability. Individual differences are posited to affect resource capacity, which affects the amount of resources that can be allocated. On the basis of the resource allocation theory developed by Kanfer and Ackerman (1989), a partially mediated model is an alternative to the completely mediated model shown in Figure 2. The partially mediated model is shown in Figure 3. In this model, the influences of distal traits are not fully mediated by proximal motivational variables. Rather, distal influences are assumed to operate at each stage of the model. Thus, Figure 3 adds paths from each of the exogenous variables to the endogenous variables. As a result, the model in Figure 3 is nested within the model in Figure 2.

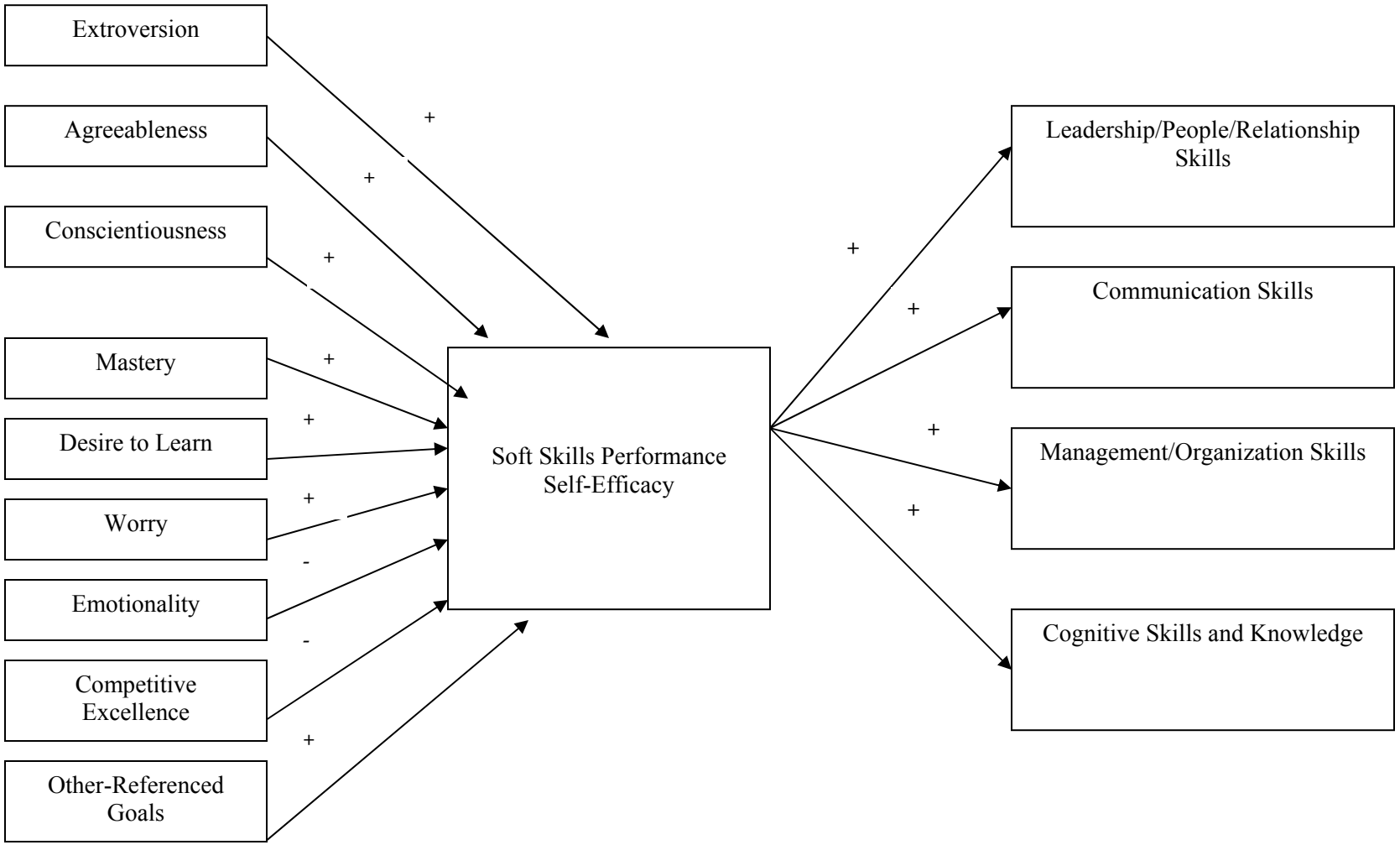

Figure 2. Hypothesized Model of Relationships between Non-Ability Individual Differences, Self-Efficacy, and Soft Skills Performance. *Note.* + represents hypothesized positive relationships, - represents hypothesized negative relationships.

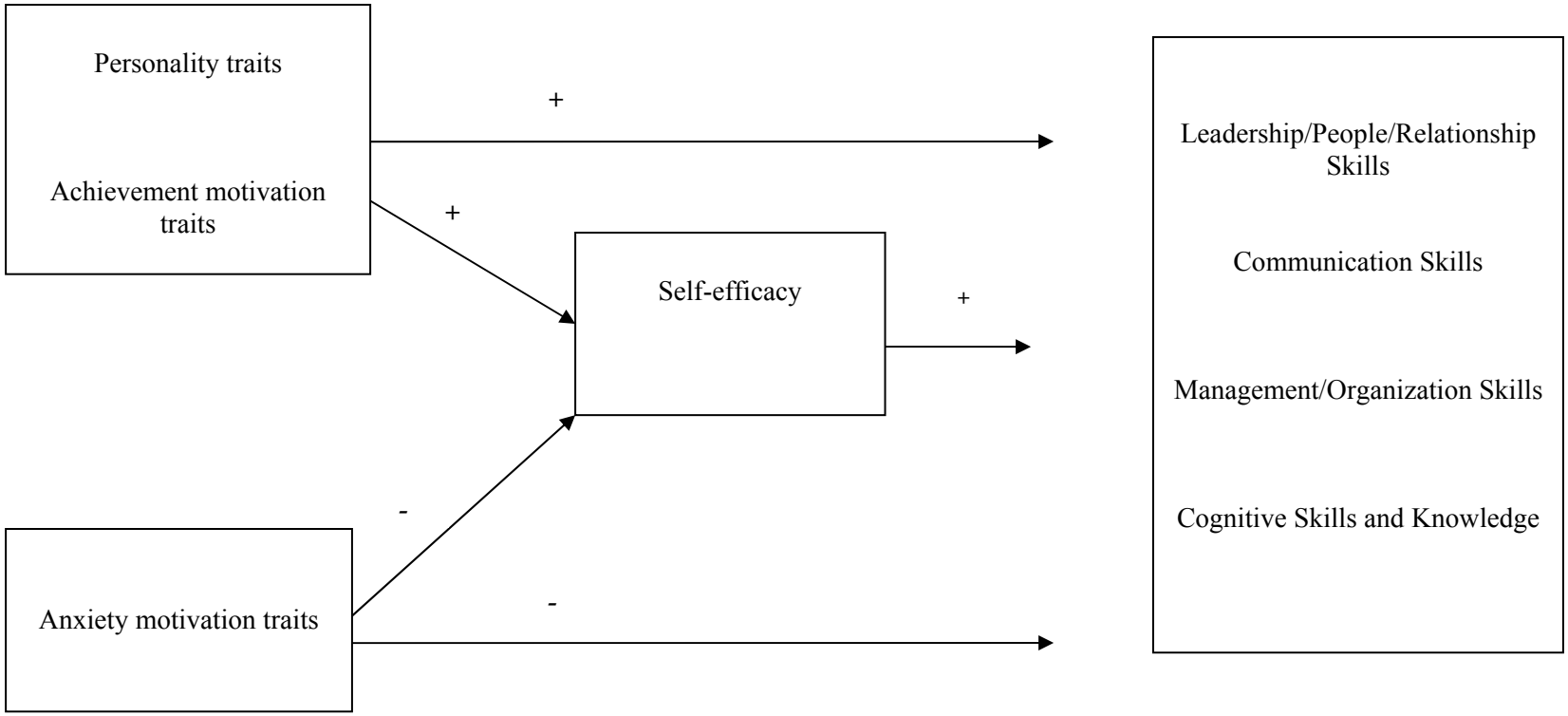

Figure 3. Heuristic Alternative Model of Relationships between Non-Ability Individual Differences, Self-Efficacy, and Soft Skills Performance.
Note. + represents hypothesized positive relationships, - represents hypothesized negative relationships.

CHAPTER 4

STUDY 1: GENERATION OF SOFT SKILLS BEHAVIOR EXEMPLARS AND CRITICAL INCIDENTS

Method

Overview

The purpose of this study was twofold: (1) to more fully delineate the specific workplace behaviors that comprise the soft skills domain, and (2) to provide an initial conceptual organization based on identified soft skills behaviors. Eighteen subject matter experts (SMEs; i.e., individuals who possessed a working knowledge of soft skills) across a variety of organizations were interviewed using a semi-structured, multi-format interview methodology to obtain behavior exemplars and critical incidents of workplace soft skills and ratings of behavior descriptors previously identified in the literature. In the first section of the interview, SMEs were asked to generate a list of soft skills behaviors required for work in general and in terms of four jobs. In the second section, SMEs rated the relevance of 43 behavior descriptors with respect to their representativeness of soft skills performance. In the third section of the interview, the critical incident technique (CIT; Flanagan, 1954) was used to generate incidents of effective and ineffective behavior representative of soft skills performance**.** Data gathered from the interviews provided a master list of behaviors. These behaviors were subjected to a qualitative cluster analysis to determine the preliminary categories of soft skills performance. These data were used to guide the development of categories in Study 2 and provided the basis for development of a measure of soft skills performance.

Pilot interviews with individuals employed in a variety of jobs (e.g., sales, business, retail) were conducted to determine the soft skills important for these positions. Four pilot interviews revealed that many of the same soft skills underlie these jobs, although the proficiency level with which an individual needs to perform these skills effectively varied across the jobs.

Participants

Structured interviews were conducted with eighteen people (9 women), drawn from seven organizations, including multiple functions (e.g., human resources, business development, logistics) within a large publicly traded/held organization specializing in package delivery (n = 10), a large data processing organization (n = 2), a government office (n = 1), a consulting firm (n = 1), independent consultants (n = 3), and a university (n=1). The SMEs had a mean of 14.1 years of experience in their profession (SD = 7.9), and 6.8 years of experience in their current position (SD = 7.7). These descriptive statistics indicate that work experience was not normally distributed among participants. Ten of these participants were employed in a supervisory position.

Procedure

Individuals identified as suitable SMEs based on knowledge and experience with soft skills performance were contacted for their voluntary participation in this study. Participants were informed that the objective of the interview was to learn more about the nature of soft skills performance. I arranged a time to interview SMEs either on the phone or in person for a period of approximately 60 minutes. SMEs were asked to

provide behaviors that describe soft skills performance broadly and in terms of specific jobs. This was done to capture the full domain of soft skills and to encourage interviewees to think broadly across a range of jobs. To capture the breadth and complexity of the soft skills domain (Bowen & Schneider, 1998), interviewees were asked about specific occupations (sales clerk, sales representative, mid-manager, small business owner).

Specifically, each SME was asked to (1) provide a definition of soft skills performance, (2) list the behaviors he/she considers to be soft skills, (3) list the behaviors he/she considers to be soft skills needed for each of the following occupations: sales clerk, sales representative, mid-manager, and small business owner, (4) rate the representativeness of 43 behavior descriptors culled from the literature to a definition of soft skills performance, and (5) provide critical incidents of individuals who have been successful and unsuccessful at performing soft skills. Interviews lasted between 30 and 75 minutes. An executive summary of the study findings was provided to participants upon completion of the study in exchange for their participation.

In line with the idea of saturation in qualitative data collection (c.f., Patton, 2002), data were collected from SMEs until a set of representative behaviors converged. That is, data collection proceeded until additional interviews failed to yield additional themes or ideas (Rubin & Rubin, 1995). According to Glaser (2001), "saturation is not seeing the same pattern over and over again. It is the conceptualization of the comparisons of these incidents which yield different properties of the pattern, until no new properties of the pattern emerge" (p. 191).

Apparatus

The semi-structured interview protocol is included in Appendix A. Prompts and probes were developed a priori to ensure that the interview protocol was uniform and standardized across participants.

Results

Open-Ended Responses

After the behaviors were generated and critical incidents were coded for underlying behaviors, they were integrated into a master list containing all of the behaviors generated by participants. The behaviors were mostly unedited. Participants provided 578 behavior exemplars and 127 critical incidents prior to editing. Next, the list was edited, as follows:

(1) Behaviors that were exact duplicates were eliminated.

(2) Behaviors that were completely unrelated to soft skills were eliminated (e.g., "applies financial and accounting knowledge").

(3) "Behaviors" that referred to non-specific personality traits/temperament were eliminated (e.g., “outgoing”).

(4) Behaviors that were redundant with other behaviors (i.e., the behaviors were the same, despite slight variations in wording, e.g., “assesses interest of client base” and “analyzes customers’ needs”) were eliminated.

(5) Behaviors that contained multiple, independent, behaviors were separated (e.g., “shows ability to look at long term needs and results and keeps an eye on immediate goals”).

(6) To the extent that it was possible without negatively impacting clarity of wording, an attempt was made to make the wording of the behaviors parallel.

(7) Behaviors that were applicable only to one specific occupation were omitted.

(8) Behaviors that had a frequency of at least two were retained. Behaviors that were not mentioned at least twice, but were thought to be important to the domain of soft skills (e.g., uses humor to make a point, cooperates with others) were retained.

(9) I wrote fifteen new behaviors, because they represented important parts of the domain that were not reflected in the existing behaviors (e.g., "engages in impression management", “acts calm during crisis”).

After editing, the list contained 107 behaviors. Table 2 shows the master list of soft skills.

Table 2. Master List of Soft Skills Behavior Exemplars

Behavior	Number
Accepts feedback	1
Acts aggressively/assertively	2
*Acts calm during crisis	3
Acts courteous and respectful	4
Acts creatively/tries new ideas	5
Acts decisively	6
Acts patiently	7
Acts straightforward and honest	8
Acts with integrity	9
Adapts to environment and people	10
Adjusts message to audience	11
*Admits mistakes	12
Analyzes needs	13
Answers questions	14
Articulates expectations	15
Asks questions	16
Assesses needs/interests	17
Attends to details	18
Builds a network	19
Builds and maintains relationships	20
Coaches/trains	21
*Commands the respect of others	22
Compliments others on valid points	23
Compromises	24
Considers consequences when making decisions	25
Controls emotions	26
cooperates with others	27
Defines objectives	28
Defuses a situation/confronts issues	29
Delegates	30
Delivers presentations	31
Demonstrates empathy	32
Develops a strategy/plan	33
Develops others	34
Develops rapport	35
Distinguishes big from small errors	36
Evaluates performance	37
Exercises judgment	38

Table 2 (continued).

Behavior	Number
Follows through on commitments	39
Follows up with others	40
*Gains power to exercise influence over others	41
Gets buy in	42
Gets dissimilar people to work together	43
Greets employees and coworkers	44
Handles delicate/confidential situations carefully	45
Handles objections	46
Hears other points of view	47
Holds others accountable for their actions	48
Holds self accountable for actions	49
Identifies talent	50
Influences others	51
Inspires trust through honesty, competence, and confidence	52
Juggles conflicting priorities	53
Knows end goal and what to do to accomplish goal	54
Knows resources	55
Learns unwritten rules	56
Listens to concerns	57
Maintains and enhances self and others' self-esteem	58
Makes inappropriate/off color comments	59
Manages impression	60
Micromanages projects	61
Models behaviors he/she would like to see others perform	62
Modifies reactions to fit the culture	63
Motivates others	64
Negotiates	65
Observes the situation and others' behavior	66
Organizes work	67
*Overcomes setbacks	68
Persists/works hard	69
Persuades	70
Plans and organizes his/her time and activities	71
Presents self with proper authority	72
Promotes a team environment	73
Promotes product/service/business/knowledge	74
Provides solutions	75

Table 2 (continued).

Behavior	Number
Recognizes limitations	76
Recognizes people's efforts	77
Reconciles opinions	78
Remains firm in decisions/doesn't vacillate	79
Resolves conflict	80
Responds to upset customers	81
Seeks information	82
Sees big picture as well as details	83
Sets goals	84
Shows a vision	85
Shows accessibility/approachability	86
Shows an entrepreneurial spirit	87
Shows confidence	88
Shows enthusiasm	89
Shows interest	90
Shows sensitivity to organizational and national cultures	91
Solves problems	92
Takes initiative	93
Takes rejection	94
*Takes risks	95
Talks before he/she thinks	96
Tolerates stress	97
Turns negative situation into a positive/learning situation	98
Under/over estimates own skills and abilities	99
Undermines others	100
Understands the political environment	101
*Updates skills	102
Uses democratic decision-making	103
Uses examples when providing feedback	104
Uses humor to make a point	105
Voices opinions	106
Works as a team player	107

* indicates a behavior written that was not included in the set of existing behaviors generated by SMEs

Qualitative Cluster Analysis

Behaviors were categorized and those that described similar behaviors were clustered together using qualitative cluster analysis (Campbell, Dunnette, Arvey, & Hellervik, 1973). Campbell et al. (1973) categorized critical incidents of effective and ineffective retail store employees by sorting incidents into categories. Similarly, Sternberg, Conway, Ketron, and Bernstein (1981) asked laypersons in a train station, a supermarket, and studying in a college library to list behaviors characteristic of either intelligence or unintelligence. In a second experiment, laypersons and experts rated various properties of intelligent behaviors, and categorized which behaviors they considered to be types of "intelligence," "academic intelligence," "everyday intelligence," and "unintelligence." Similar to these procedures, I assessed underlying communalities between behaviors to determine the groupings of behaviorss of soft skills performance generated by the SMEs.

Qualitative cluster analysis is a modification of the method of scaled expectations (Smith & Kendall, 1963) by which individuals consider in detail the components of performance for a domain and define anchors for the performance continua in specific behavioral terms. Qualitative cluster analysis involves completing a clustering and sorting exercise to determine themes. I analyzed the responses participants provided and formed clusters based on recurrent concepts or themes. I classified behaviors into homogeneous groups, using as many dimensions as needed. After analysis and interpretation of the clusters, ten different categories of soft skills emerged from the data. The categories developed after qualitative cluster analysis are shown in Table 3, along with behaviors within each category.

Table 3. Results of Qualitative Cluster Analysis on Open-Ended Interview Responses

Communication Skills	Acts straightforward and honest
	Adjusts message to audience
	Answers questions
	Articulates knowledge
	Asks questions
	Compliments others on valid points
	Delivers presentations
	Greets employees and coworkers
	Hears other points of view
	Listens to concerns
	Makes inappropriate/off color comments
	Observes
	Presents self with proper authority
	Talks before he/she thinks
	Uses examples when providing feedback
	Uses humor to make a point
	Voices opinions
Leadership Skills	Commands the respect of others
	Gains power to exercise influence over others
	Identifies talent
	Influences others
	Inspires trust through honesty, confidence, and competence
	Models/demonstrates behaviors he/she would like to see others perform
	Motivates others
	Recognizes people's efforts
	Shows a vision
	Shows an entrepreneurial spirit
Self-Management Skills	Accepts feedback
	Acts calm during crisis
	Acts with integrity
	Adapts to environment and people
	Admits mistakes
	Controls emotions
	Follows through on commitments
	Holds self accountable for actions
	Maintains and enhances self and others' self-esteem
	Manages impression
	Overcomes setbacks
	Persists/works hard

Table 3 (continued).

	Shows confidence
	Takes initiative
	Takes rejection
	Tolerates stress
	Turns negative situation into a positive/learning situation
	Under/over estimates skills and abilities
	Updates skills
Decision Making/Problem Solving Skills	Acts decisively
	Compromises
	Considers consequences when making decisions
	Defuses a situation/confronts issues
	Distinguishes big from small errors
	Exercises judgment
	Handles objections
	Negotiates
	Provides solutions
	Reconciles opinions
	Remains firm in decisions/doesn't vacillate
	Resolves conflict
	Solves problems
	Uses democratic decision-making
Management Skills	Attends to details
	Coaches/trains
	Defines objectives
	Delegates
	Develops others
	Evaluates performance
	Follows up with others
	Gets dissimilar people to work together
	Holds others accountable for their actions
	Knows end goal and what to do to get there
	Promotes a team environment
	Sees big picture as well as details
	Sets goals
Organization Skills	Develops a strategy/plan
	Micromanages projects
	Juggles conflicting priorities
	Organizes work
	Plans and organizes his/her time and activities
	Seeks information

Table 3 (continued).

Interpersonal Skills	Acts aggressively/assertively
	Acts courteous and respectful
	Acts patiently
	Builds and maintains relationships
	Cooperates with others
	Demonstrates empathy
	Develops rapport
	Handles delicate/confidential situations carefully
	Shows accessibility/approachability
	Shows enthusiasm
	Shows interest
	Undermines others
Political Skills	Builds a network
	Knows resources
	Articulates expectations
	Learns unwritten rules
	Modifies reactions to fit the culture
	Shows sensitivity to organizational and national cultures
	Understands the political environment
Analysis/Creativity Skills	Acts creativity/tries new ideas
	Analyzes needs
	Assesses interests
	Recognizes limitations
	Takes risks
Selling Skills	Gets buy in
	Persuades
	Promotes product/service/business/knowledge
	Responds to upset customers

Representativeness Ratings

Descriptive statistics were computed for behaviors rated by participants as potential indicators of soft skills performance. Behaviors with mean ratings indicating moderate or high representativeness (i.e., an average score of at least '5' on a 6-point Likert-type scale) were retained for use in the development of the measure of soft skills in Study 3. That is, if SMEs indicated that behaviors were representative of soft skills performance, then these additional behaviors were considered for use in the development of the measures in Study 3. Descriptive statistics for these items are shown in Table 4, and are ordered in terms of descending mean representativeness rating.

Table 4. Descriptive Statistics for Representativeness Ratings of Behavior Descriptors

	M	SD
Listens to the views of others	5.73	0.59
Asks questions to promote understanding	5.67	0.62
Listens to new ideas	5.62	0.51
Negotiates	5.54	0.52
Demonstrates empathy and understanding	5.53	0.74
Gives feedback	5.53	0.92
Inspires trust through honesty, confidence, and competence	5.53	0.92
Promotes teamwork	5.50	0.67
Motivates others	5.40	0.74
Collaborates with others	5.38	0.97
Shows self-control	5.38	1.12
Is a "team player"	5.36	0.93
Thinks creatively	5.36	0.75
Serves customers	5.31	1.18
Shows mutual respect	5.31	1.25
Shows judgment and critical thinking	5.27	1.10
Is courteous	5.23	1.48
Is sensitive to organizational and national cultures	5.23	1.24
Solves problems	5.20	1.26
Adapts to and leads change	5.18	0.67

Table 4 (continued).

Accepts responsibility	5.17	0.92
Shows vision	5.17	1.03
Follows-up with others	5.13	0.64
Identifies talent	5.08	1.32
Plans and organizes his/her time and activities	5.07	0.88
Accepts feedback	5.00	1.07
Resolves conflict	5.00	1.04
Coaches others	4.92	1.32
Works in a team	4.92	1.44
Is internally motivated	4.80	1.21
Answers questions when speaking to a group	4.77	1.12
Delegates work	4.73	1.22
Manages change	4.69	1.32
Speaks to a group	4.67	1.23
Takes supervision	4.58	1.38
Plans work activities for others	4.53	1.36
Manages and plans projects	4.42	1.44
Manages meetings	4.38	1.33
Adjusts process, procedure, or system to meet goals	4.33	1.50
Demonstrates a desire to lead	4.17	1.25
Makes business decisions	4.13	1.36
Writes in business style	3.93	1.28
Conforms to prevailing norms	3.46	1.71

Discussion

Results obtained in Study 1 provided initial evidence for the scope and organization of workplace behaviors subsumed in the broader construct of soft skills. Using multi-format interview data obtained from a diverse sample of SMEs, two results of particular importance were obtained. First, using data obtained from open-ended responses, qualitative cluster analysis was used to identify soft skill categories. Results of this analysis provided identification of ten categories of soft skills performance, including communication skills, leadership skills, decision making/problem solving skills, self-management skills, management skills, organization skills, interpersonal skills, political skills, analysis/creativity skills, and selling skills. While these dimensions are more numerous than those hypothesized (i.e., leadership/people/relationship skills, communication skills, management/organization skills, cognitive skills and knowledge), the ten categories found in the current study were expected to cluster analyze into fewer dimensions in Study 2. Second, SME ratings of soft skills behavior representativeness for 43 specific behaviors showed 27 of the 43 behaviors were rated as moderate or high representativeness of skills in the workplace.

The findings from both the open-ended cluster analysis and behavior ratings are consistent with prior theory and research. Specifically, categories of soft skills performance such as communication skills, management skills, decision making/problem solving skills, and interpersonal skills have been supported by research and theory (e.g., Argyris, 1962; Boyatzis, 1982; Stevens & Campion, 1994). However, results from this study extended the domain of soft skills. That is, skills such as selling and self-management skills have not previously been identified in the literature as competencies

required for effective job performance. As such, this research suggests the importance of both inter- and intra-personal skills for soft skills performance. Using an open-ended approach to data collection was a distinct advantage in order to uncover additional dimensions beyond what was predicted.

The use of open-ended data helps to capture salient elements of the domain and avoid problems associated with framing the domain. Collecting behavior exemplars for a variety of occupations did prompt different behaviors, but overall greater communality than distinctiveness was found. For example, behavior exemplars offered by SMEs for retail sales positions included behaviors such as "developing rapport," "listening to needs," and "acting politely." Behavior exemplars for small business owner included "getting others to buy into a vision," "taking risks," and "understanding customers." Organization of behaviors into categories was subjective, but moderately consistent with past work on areas of soft skills.

The use of rating data extends prior research on conceptualizations and operational definitions of soft skills in workplace literature. Examination of the behaviors that were rated as moderately or highly representative of soft skills performance indicates that many of these behaviors may be compound or multidimensional. For example, "listens to the view of others" is indicative of both communication and interpersonal skills. The behaviors not rated highly are perhaps more narrowly confined to specific jobs (e.g., "delegates work"). Additionally, items with relatively large standard deviations (e.g., "manages change"; SD = 1.32) showed that SMEs reported a high degree of variability with regard to the representativeness of these behaviors. For example, SMEs often reported that the behavior "writes in business style" is not important for effective

soft skills performance; skills such as this one may be obsolete or relatively less important than other behaviors.

In summary, results of Study 1 provide initial multi-method input into delineating the domain of workplace soft skills. The study used SMEs; the next step is to provide evidence for the viability of this organization and depiction of the domain using a quantitative approach to understanding the domain of soft skills performance.

CHAPTER 5

STUDY 2: REDUCTION OF MASTER LIST OF SOFT SKILLS PERFORMANCE

Method

Overview

The behaviors in the master list generated in Study 1 were organized by having participants sort the master list of soft skills from Study 1 using a Q-sort methodology (Block, 1961) into categories. Volunteer participants enrolled in a Master of Business Administration (MBA) degree program sorted 107 behaviors into categories. The sorting task produced a co-occurrence matrix, which served as input to a quantitative cluster analysis and multidimensional scaling. Hierarchical cluster analysis and multidimensional scaling were used to determine the clusters and associated behaviors underlying the domain of soft skills.

Participants

On the basis of previous research using a similar procedure (e.g., Kenney, Blascovich, & Shaver, 1994; Schneider, Kanfer, & Ackerman, 1996) 52 people were recruited for voluntary participation in Study 2. Data from four participants were excluded due to failure to follow instructions. These participants (38 male) were enrolled in an MBA degree program at Georgia Tech. Age ranged from 21 to 35 (M = 27.0, SD = 3.1). MBA students were selected as the appropriate sample for this study because on average they have several years of full-time work experience (M = 4.10 years, SD = 2.70

years), which are necessary for exposure to the domain of soft skills. Participants were provided lunch and a presentation on study findings in return for completing this task.

Procedure

Each of the behaviors on the master list was put on a small card, and each participant was given his/her own set of cards to sort. Each deck was shuffled prior to being given to the participants. Instructions were read aloud to participants, who followed along with a written set of instructions for reference.

> "This study is looking at the types of behaviors that represent soft skills performance, or the *non-technical competencies* needed for effective job performance. Today you will be doing a sorting task of behaviors to understand the categories of soft skills.
>
> Please take a moment to look through the stack of cards in front of you. Note that each card contains a behavior referring to a type of soft skill. I would like you to sort these cards into categories representing your best judgments about which behaviors are similar to each other and which are different from each other. Determine which behaviors are similar based on the underlying characteristics that a person would need to have in order to display the described behavior. There is no one correct way to sort the cards.
>
> Suppose, for example, that you are trying to decide if three cards should be sorted into the same pile. The first card says "accountant," the second card says "finance manager," and the third card says "engineer." You might put the two cards that say "accountant" and "finance manager" into the same pile because they share the underlying attribute of both working with money.
>
> Spread the cards out and move them around until the groupings make sense to you. I expect that you may end up with somewhere between 8 and 12 different groups of cards, but you are free to use more or fewer groups if you feel that it is appropriate. The groups do not need to be of equal size, so you may put any number of cards in a group. The only criterion that I ask is that you <u>not</u> create a "miscellaneous pile" (any behavior you think it unique should be put in its own pile).
>
> Once you have organized your groups, please go back through each group to see if you would like to switch any of the cards around. This is an important part of

the task; I want to make sure that you are satisfied with your grouping of the skills.

After you are done, please keep your piles intact. On the next pages, record the numbers that appear in the lower right corner of each card for the each group of behaviors you create. The last page asks you to answer a few basic questions. When you are done, please raise your hand to let me know you have finished, and I'll pick up your materials.

Take as long as you need. If you have any questions, please raise your hand and I will help you."

Numbers were provided in the lower right-hand corner of each index card. After participants sorted their cards into piles, they were given a form to indicate their groupings using the numbers on each card. They were asked to leave their piles intact when they were excused, and I spot-checked their grouping forms for accuracy to ensure they transcribed the data correctly.

Participants were excused after completing the sorting task. The participants completed the sorting task in a stadium-style classroom, and had ample room to spread out their cards into piles. Participants took between 25 and 60 minutes to complete the task.

Results

The number of categories created by each participant in the sorting task ranged from 5 to 19 (M = 10.94, SD = 3.25). The number of behaviors placed by participants into categories ranged from 1 to 44 (M = 9.83, SD = 7.08). A 107 x 107 co-occurrence matrix for each participant was created. For each participant, a '1' was placed in a co-occurrence matrix if he/she indicated behaviors are in the same sort group and a '0' if he/she indicated behaviors are in different groups. For example, a category consisting of

four behaviors numbered 1, 10, 24, and 53 would have six pairs: 1-10, 1-24, 1-53, 10-24, 10-53, and 24-53. A co-occurrence matrix of individual matrices was obtained by aggregating matrices across participants. The aggregated matrix has numbers from 0 to *n* (with *n* participants), and can be considered a proximity matrix for clustering (Kruskal & Wish, 1978). Zero indicates that the two terms defining a particular cell were never placed in the same category, and *n* indicates that all *n* participants placed the two terms in the category. The more sorters who paired two behaviors together, the more similar these pairs were understood to be. Frequencies of co-occurrence were treated as an indication of similarity between behaviors. The co-occurrence matrix was subjected to clustering and scaling procedures to reduce the behaviors to their underlying dimensions. Hierarchical cluster analysis and multidimensional scaling were used in tandem to (1) determine the number of categories underlying the data and (2) determine the behaviors that comprise each category.

Cluster Analysis Results

Cluster analysis permits a researcher to "discover structure in data that is not readily apparent by visual inspection or by appeal to other authority" (Aldenderfer & Blashfield, 1984, p. 16). The clusters should exhibit high internal homogeneity (within clusters) and high external heterogeneity (between clusters). Cluster-analytic procedures involve agglomeration or partitioning rules for combining or separating variables or cases into homogeneous clusters on the basis of the numerically defined similarities or differences (Fruchter, 1954). Earlier cluster analysis methods (c.f., Tryon, 1939) were direct partition procedures in which all individuals in a primary sample are classified

according to similarities of their measurement profiles to empirically identified cluster nuclei, usually defined as a triad of measurement profiles with higher average similarity than other profiles not already assigned to a cluster. Additional behaviors are then assigned (according to numerical similarity) to one of the previously identified clusters, or they enter into definition of a new cluster nucleus if not sufficiently similar to one of the previously identified clusters. The process is terminated when no new cluster nuclei can be identified or all individuals have been assigned to one of the existing empirically identified clusters. Once assigned to the nearest cluster, a behavior remains in that cluster, and clusters are not combined at later stages of the analysis.

To test Hypothesis 1 regarding the number of clusters underlying soft skills performance, hierarchical cluster analysis in SPSS was conducted as a first step in order to determine the number of clusters underlying the data. Hierarchical clustering begins by combining similar variables and proceeds to combine smaller clusters to form larger clusters, with the result that the number of separate clusters decreases at each stage until there is only one. As such, hierarchical cluster analysis in SPSS uses an agglomerative algorithm for combining data. In agglomerative hierarchical cluster analysis, individual items that are most similar (or least dissimilar) are fused to form the first cluster. Subsequently, plots are continually fused one-by-one in order of highest similarity to the plot to which they are most similar.

To test for the presence of outliers in the data set, an initial hierarchical cluster analysis was conducted. Inspection of the associated dendogram (i.e., a tree diagram) revealed the presence of three outliers: “Gains power to exercise influence over others,” “Persists/works hard,” and “Shows enthusiasm”. These variables were considered outliers

because (1) they entered the cluster formations relatively late and (2) they were a great distance from the clusters (i.e., they lacked shared meaning).

After removal of outliers, the aggregated co-occurrence matrix was subjected to the between-groups linkage method of hierarchical cluster analysis (where the criterion is the average distance from individuals in one cluster to individuals in another),using the chi-square test of equality for two sets of frequencies (the default for frequency data). The agglomeration schedule displays the variables combined at each stage and the within cluster sum of squares. As shown in Table 5 two-item clusters were made for the first sixteen stages. Stage 1 represents two clusters: (1) variables 21 "Coaches/trains" and 104 "Uses examples when providing feedback" and (2) the remaining 105 observations. Starting at stage 17, existing two-item clusters started combining with other items. For example, at stage 17, variable 84 ("Sets goals") combined with the cluster comprising variable 33 ("Develops a strategy/plan") and variable 54 ("Knows end goal and what to do to accomplish goal"). Starting at stage 18, new two-item clusters started to combine with existing multiple-item clusters. For example, at stage 18, the cluster consisting of variable 23 ("Compliments others on valid points") and variable 35 ("Develops rapport") combined with the cluster consisting of variable 86 ("Shows accessibility/approachability") from stage 3 and variable 73 ("Promotes a team environment") from stage 13. This process continues through N-1 (where N is the number of cases) iterations, where small clusters are added together to create fewer but larger clusters.

Table 5. Hierarchical Cluster Analysis Agglomeration Schedule

	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
Stage	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	21	104	9.197	0	0	41
2	33	54	9.360	0	0	17
3	23	86	9.437	0	0	18
4	60	105	9.517	0	0	63
5	15	30	9.550	0	0	22
6	58	77	9.579	0	0	39
7	2	22	9.600	0	0	20
8	46	81	9.612	0	0	38
9	3	97	9.615	0	0	32
10	45	65	9.632	0	0	38
11	24	43	9.664	0	0	49
12	75	92	9.739	0	0	23
13	35	73	9.758	0	0	18
14	6	88	9.809	0	0	45
15	4	32	9.810	0	0	74
16	18	53	9.839	0	0	40
17	33	84	9.855	2	0	43
18	23	35	9.894	3	13	44
19	59	99	9.895	0	0	52
20	2	72	9.997	7	0	53
21	87	95	10.003	0	0	28
22	15	38	10.030	5	0	51
23	74	75	10.042	0	12	54
24	66	101	10.048	0	0	48
25	50	64	10.065	0	0	41
26	8	9	10.090	0	0	86
27	13	17	10.155	0	0	60
28	87	93	10.157	21	0	90
29	57	78	10.179	0	0	49
30	42	70	10.188	0	0	63
31	10	63	10.205	0	0	65
32	3	26	10.236	9	0	81
33	55	102	10.259	0	0	61
34	51	106	10.356	0	0	68
35	20	44	10.420	0	0	57
36	103	107	10.423	0	0	44
37	67	71	10.433	0	0	73
38	45	46	10.496	10	8	62
39	34	58	10.506	0	6	84
40	18	25	10.509	16	0	51

Table 5 (continued).

	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
Stage	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
41	21	50	10.513	1	25	71
42	39	62	10.529	0	0	50
43	33	83	10.581	17	0	47
44	23	103	10.621	18	36	57
45	6	85	10.671	14	0	69
46	29	98	10.708	0	0	62
47	28	33	10.727	0	43	92
48	56	66	10.748	0	24	55
49	24	57	10.762	11	29	58
50	39	49	10.784	42	0	66
51	15	18	10.874	22	40	76
52	59	100	10.921	19	0	94
53	2	79	10.929	20	0	69
54	74	82	10.997	23	0	61
55	11	56	10.999	0	48	79
56	7	14	11.005	0	0	72
57	20	23	11.035	35	44	64
58	24	47	11.052	49	0	85
59	1	12	11.063	0	0	82
60	13	37	11.078	27	0	71
61	55	74	11.105	33	54	77
62	29	45	11.111	46	38	70
63	42	60	11.168	30	4	80
64	20	27	11.170	57	0	74
65	10	91	11.204	31	0	79
66	39	40	11.244	50	0	67
67	39	76	11.257	66	0	86
68	31	51	11.266	0	34	80
69	2	6	11.293	53	45	92
70	29	80	11.300	62	0	78
71	13	21	11.421	60	41	93
72	7	16	11.476	56	0	78
73	36	67	11.596	0	37	76
74	4	20	11.619	15	64	85
75	61	96	11.620	0	0	87
76	15	36	11.661	51	73	88
77	5	55	11.699	0	61	88
78	7	29	11.712	72	70	89
79	10	11	11.717	65	55	103
80	31	42	11.748	68	63	97

Table 5 (continued).

	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
Stage	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
81	3	68	11.765	32	0	96
82	1	94	11.814	59	0	89
83	89	90	11.815	0	0	97
84	34	52	11.896	39	0	95
85	4	24	11.949	74	58	91
86	8	39	12.197	26	67	96
87	41	61	12.246	0	75	94
88	5	15	12.376	77	76	93
89	1	7	12.555	82	78	100
90	69	87	12.624	0	28	98
91	4	19	12.658	85	0	95
92	2	28	12.736	69	47	98
93	5	13	12.841	88	71	99
94	41	59	12.852	87	52	106
95	4	34	12.947	91	84	103
96	3	8	12.987	81	86	99
97	31	89	13.017	80	83	100
98	2	69	13.052	92	90	101
99	3	5	13.202	96	93	102
100	1	31	13.806	89	97	102
101	2	48	14.306	98	0	104
102	1	3	14.323	100	99	104
103	4	10	14.966	95	79	105
104	1	2	15.747	102	101	105
105	1	4	17.416	104	103	106
106	1	41	19.064	105	94	0

To determine the appropriate number of clusters underlying the data, the agglomeration schedule is examined for "jumps" and "flattenings" (Aldenderfer & Blashfield, 1984). That is, the within cluster sum of squares coefficients (i.e., the distances between items in clusters) are examined at each stage for relatively large changes. A large change indicates that a cluster solution is converging. As shown in Table 6 there was a relatively large change in the within cluster sum of squares coefficient from (1) eight to seven clusters (2) five to four clusters, and (3) three to two clusters. The distance coefficient corresponding to the 7-cluster solution increased 4.37% from the 8-cluster solution. The distance coefficient corresponding to the 4-cluster solution increased 4.30% from the 5-cluster coefficient. And, the distance coefficient for the 2-cluster solution increased 9.58% from the 3-cluster coefficient. After a review of the incremental jump in distance coefficients based on the agglomeration schedule, seven, four, and two-cluster solutions were retained for further investigation.

Table 6. Changes in Within-Cluster Sum of Squares Coefficient to Determine Number of Clusters

Stage	Number of Clusters	Coefficients	Change in Coefficients	Percent Change in Coefficients
92	15	12.736	0.078	0.61%
93	14	12.841	0.105	0.82%
94	13	12.852	0.011	0.09%
95	12	12.947	0.095	0.73%
96	11	12.987	0.040	0.31%
97	10	13.017	0.030	0.23%
98	9	13.052	0.035	0.27%
99	8	13.202	0.150	1.14%
100	7	13.806	0.604	4.37%
101	6	14.306	0.500	3.50%
102	5	14.323	0.017	0.12%
103	4	14.966	0.643	4.30%
104	3	15.747	0.781	4.96%
105	2	17.416	1.669	9.58%
106	1	19.064	1.648	8.64%

Hierarchical cluster analysis takes the co-occurrence matrix and partitions it into groups or clusters, which are represented on a dendogram. The objects are represented as nodes in the dendogram and the branches illustrate when the cluster method joins subgroups containing that object. The length of the branch indicates the distance between the subgroups when they are joined. A dendogram that clearly differentiates groups of objects will have small distances in the far branches of the tree and large differences in the near branches (Stockburger, 1998). The joining or tree clustering method uses the similarities or distances between objects when forming the clusters. Figure 4 displays the dendogram for the behaviors used in the sorting task. As can be seen, the vertical lines indicate the stage in the agglomerative process, and the horizontal lines indicate the distance from the cluster center.

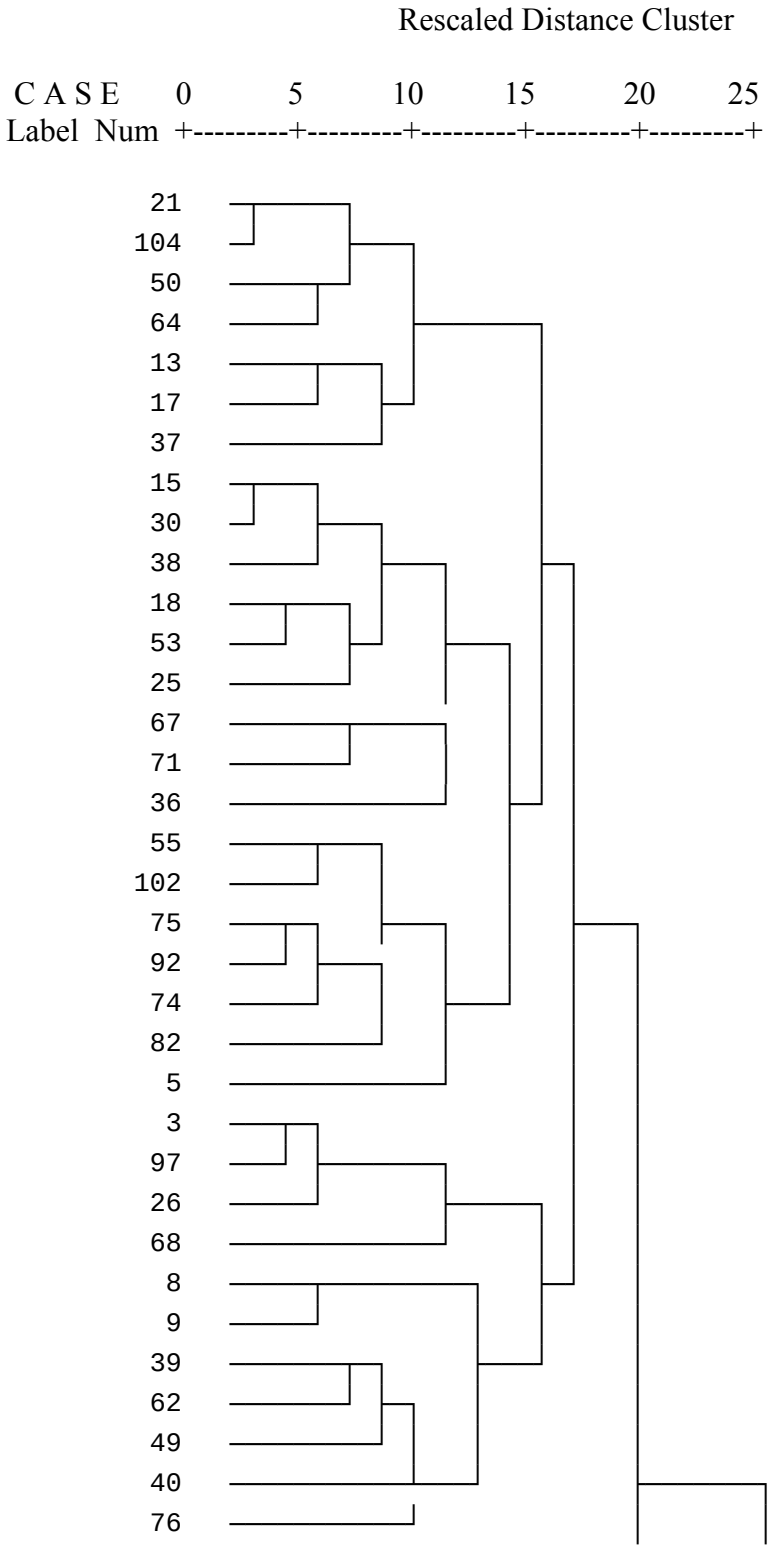

Figure 4. Dendrogram using Average Linkage (Between Groups)

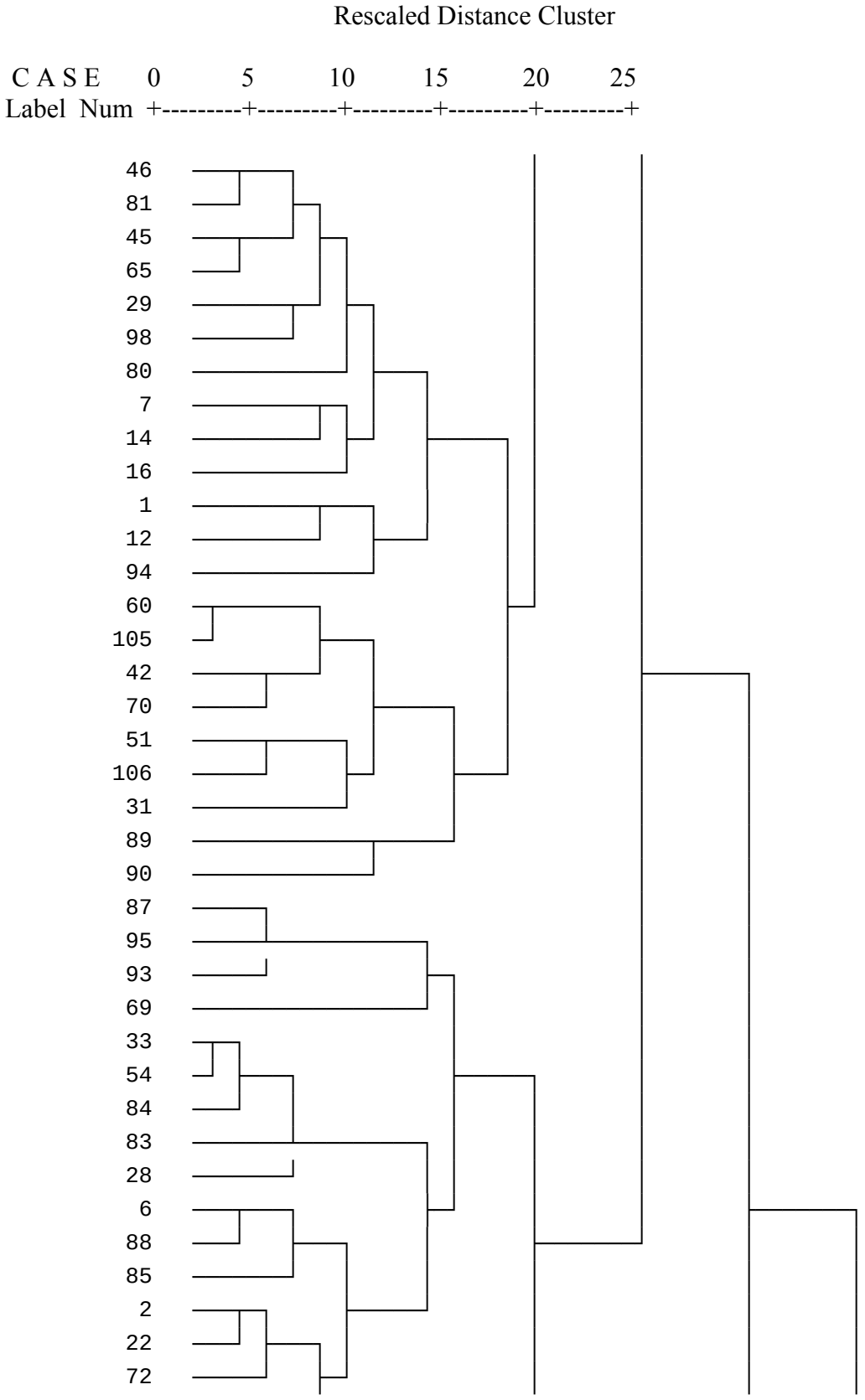

Figure 4 continued.

Figure 4 (continued).

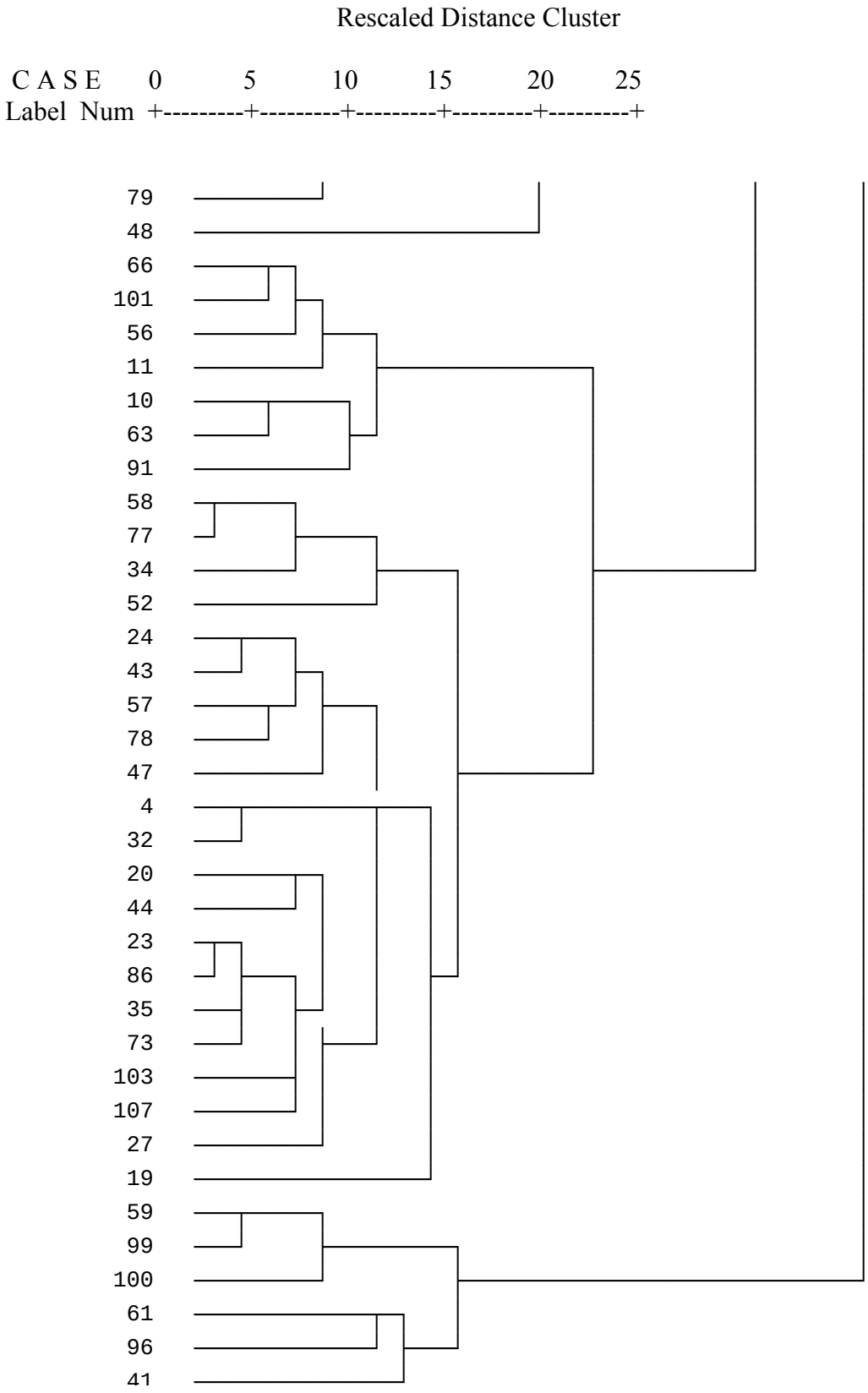

Figure 4 continued.

Multidimensional Scaling Results

In order to determine the most appropriate cluster/scaling solution, multidimensional scaling (MDS) was used to determine which variables belong to various clusters. MDS attempts to find the structure in a set of distance measures between objects or cases. This is accomplished by assigning observations to specific locations in a conceptual space such that the distances between points in the space match the given similarities/dissimilarities as closely as possible (Kruskal & Wish, 1978). The purpose of multidimensional scaling (MDS) is to provide a visual representation of the pattern of proximities (i.e., similarities or distances) among a set of objects. More specifically, MDS finds a set of vectors in p-dimensional space such that the matrix of distances among them corresponds as closely as possible to some function of the input matrix according to a criterion function called stress.

PROXimity SCALing (PROXSCAL) performs multidimensional scaling of proximity data to find a least squares representation of the objects in low dimensional space. It can analyze one or more matrices of dissimilarity or similarity data. Since the data in Study 2 are ordinal data (nonmetric), PROXSCAL can be used. Nonmetric scaling assumes that the data are qualitative (i.e., that they are at the ordinal level of measurement). By default, PROXSCAL expects a symmetric matrix of similarities of ordinal data.

I applied PROXSCAL in SPSS to this data set of proximities. I used an identity scaling model (where all sources have the same configuration), the shape of the model was a lower-triangular matrix, similarities were used as proximity values, and ordinal proximity transformations with tied observations were specified. I did not place any

restrictions on the common space. In terms of the iteration criteria, stress convergence was set to .0001, minimum stress was set at .0001, and maximum iterations was set to 100. This says that the algorithm will stop iterating when the difference in consecutive normalized raw stress values is less than .0001. A variety of stress measures are used to assess the fit of the data to *k*-dimensional space. I used the S-STRESS value (Kruskal & Wish, 1978) for ordinal data, which measures the degree of correspondence between the squared distances. I then examined solutions in 2-4 dimensions based on S-STRESS results. According to the S-STRESS test results, K = 4 seems to be the appropriate number of dimensions (i.e., 4-dimensional space) based on Kruskal and Wish's (1978) rules of thumb for interpreting stress values (i.e., stress less than .10 indicates good fit). Using the dispersion accounted for (DAF) measure, 96.9% of the dispersion can be accounted for by the 4-dimensional solution. Stress values for the 2-, 3-, and 4-dimensional solutions are shown in Table 7.

Table 7.

Stress Values for PROXSCAL Multidimensional Scaling Analysis Solutions

	2-Dimensional Solution	3-Dimensional Solution	4-Dimensional Solution
Normalized Raw Stress	.08991	.05091	.03111
Stress-I	.29986	.22563	.17638
Stress-II	.69727	.64754	.59334
S-Stress	.20755	.13076	.08718
Dispersion Accounted For (DAF)	.91009	.94909	.96889
Tucker's Coefficient of Congruence	.95398	.97421	.98432

Figure 5 shows a plot of stress values to illustrate the loss of fit in the 2-, 3-, and 4-dimensional solutions. As can be seen, stress values decrease as the number of dimensions increases.

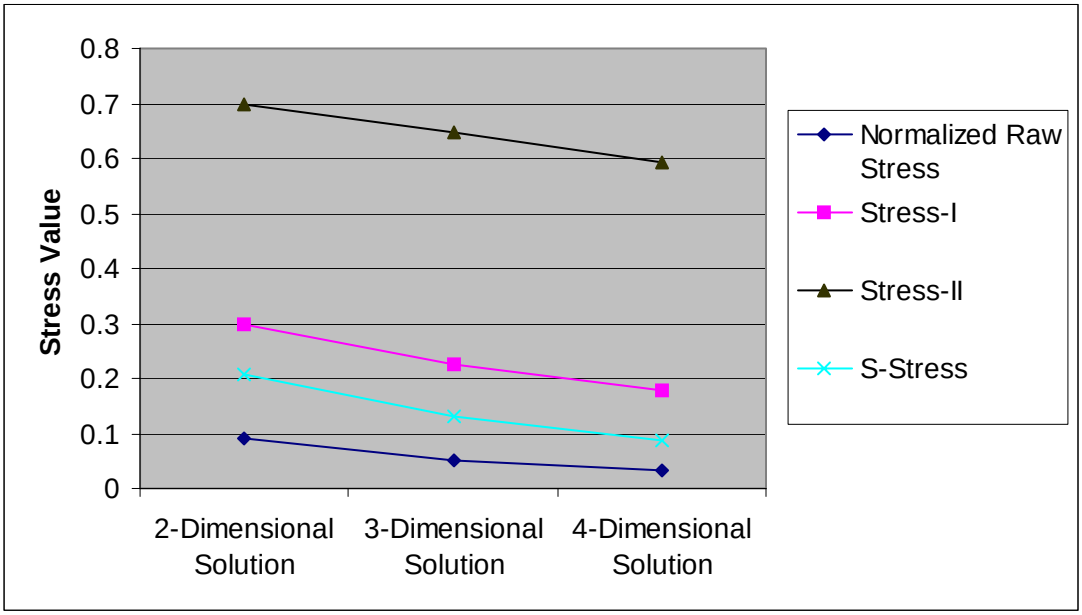

Figure 5. Line Graph of Stress Values for 2-, 3-, and 4-Dimensional Solutions

Since a 4-dimensional solution is not readily interpretable, 2- and 3-dimensional plots of objects in common space were created and interpreted based on the variables' final coordinates. Interpretation of the 2-dimensional plot yields 7 clusters: (1) communication/persuasion skills, (2) performance management skills, (3) self-management skills, (4) interpersonal skills, (5) leadership/organization skills, (6) political/cultural skills, and (7) counterproductive skills. Interpretation of the 3-dimensional plot does not yield interpretable clusters because the plots using dimensions

1 and 3 and dimensions 2 and 3 (shown in Figure 6) did not produce overlapping results. Final clusters and associated behaviors based on the 2-dimensional solution are shown in Table 8. Coordinates based on the 3- and 4-dimensional solution are shown in Tables 9 and 10, respectively, for illustrative purposes. Figures 6 and 7 show the plots of the two- and three-dimensional solutions.

Table 8. Multidimensional Scaling (PROXSCAL) Results: Clusters and Final Coordinates in 2-Dimensional Space

	Final Coordinates	
I. Communication/Persuasion Skills		
Acts creatively/tries new ideas	.416	.527
Asks questions	-.257	.426
Delivers presentations	.318	.605
Gets buy in	-.063	.468
Influences others	.246	.346
Negotiates	-.338	.262
Persuades	.054	.373
Seeks information	.200	.541
Shows enthusiasm	.020	.664
Takes rejection	.003	.759
Updates skills	.282	.502
Voices opinions	.533	.526
Uses humor to make a point	-.182	.648
II. Performance Management Skills		
Acts with integrity	.057	-.245
Acts straightforward and honest	.029	-.312
Analyzes needs	.002	-.661
Answers questions	-.515	-.506
Articulates expectations	.166	-.533
Assesses needs/interests	-.180	-.745
Coaches/trains	-.308	-.626
Develops others	-.404	-.536
Evaluates performance	.184	-.619
Follows through on commitments	.045	-.499
Follows up with others	-.194	-.310
Identifies talent	-.148	-.530
Inspires trust through honesty, competence, and confidence	-.420	-.471
Juggles conflicting priorities	.162	-.429
Maintains and enhances self and others' self-esteem	-.569	-.403
Models behaviors he/she would like to see others perform	-.014	-.344
Motivates others	-.300	-.433
Promotes product/service/business/knowledge	.068	-.610
Recognizes limitations	-.166	-.645
Recognizes people's efforts	-.490	-.364
Uses examples when providing feedback	-.295	-.671

Table 8 (continued).

III. Self-Management Skills		
Acts aggressively/assertively	.623	.102
Acts calm during crisis	.198	.165
Controls emotions	.134	.083
Overcomes setbacks	.449	.111
Presents self with proper authority	.417	.029
Remains firm in decisions/doesn't vacillate	.841	.047
Shows an entrepreneurial spirit	.685	.251
Shows confidence	.712	.103
Solves problems	.303	.053
Takes initiative	.829	.210
Takes risks	.718	.176
Tolerates stress	.266	.128
IV. Interpersonal Skills		
Acts courteous and respectful	-.641	-.134
Acts patiently	-.337	-.014
Admits mistakes	-.300	.124
Builds a network	-.716	.008
Builds and maintains relationships	-.788	-.086
Compliments others on valid points	-.665	-.212
Compromises	-.671	.089
cooperates with others	-.730	.117
Defuses a situation/confronts issues	-.153	.077
Demonstrates empathy	-.653	-.225
Develops rapport	-.750	-.125
Gets dissimilar people to work together	-.467	-.089
Greets employees and coworkers	-.758	.055
Hears other points of view	-.639	.051
Listens to concerns	-.601	-.039
Promotes a team environment	-.537	-.183
Reconciles opinions	-.549	.129
Resolves conflict	-.385	-.015
Shows accessibility/approachability	-.546	-.218
Turns negative situation into a positive/learning situation	-.207	.165
Uses democratic decision-making	-.653	-.143
Works as a team player	-.718	-.109

Table 8 (continued).

V. Leadership/Organization Skills		
Acts decisively	.670	-.079
Attends to details	.321	-.658
Commands the respect of others	.470	-.107
Considers consequences when making decisions	.359	-.501
Defines objectives	.529	-.516
Delegates	.335	-.224
Develops a strategy/plan	.621	-.348
Distinguishes big from small errors	.450	-.696
Exercises judgment	.465	-.298
Holds others accountable for their actions	.783	-.359
Holds self accountable for actions	.245	-.236
Knows end goal and what to do to accomplish goal	.644	-.398
Knows resources	.283	-.798
Persists/works hard	.786	-.088
Organizes work	.436	-.544
Plans and organizes his/her time and activities	.548	-.542
Provides solutions	.488	-.076
Sees big picture as well as details	.588	-.402
Sets goals	.592	-.307
Shows a vision	.676	-.121
VI. Political/Cultural Skills		
Accepts feedback	-.362	.526
Adapts to environment and people	-.710	.424
Adjusts message to audience	-.504	.623
Handles delicate/confidential situations carefully	-.403	.283
Handles objections	-.405	.559
Learns unwritten rules	-.369	.805
Manages impression	-.178	.597
Modifies reactions to fit the culture	-.664	.569
Observes the situation and others' behavior	-.606	.468
Responds to upset customers	-.543	.475
Shows interest	-.520	.238
Shows sensitivity to organizational and national cultures	-.824	.257
Understands the political environment	-.602	.653

Table 8 (continued).

VII. Counterproductive Skills		
Gains power to exercise influence over others	.739	.497
Makes inappropriate/off color comments	.728	.990
Micromanages projects	1.075	-.141
Talks before he/she thinks	.649	.842
Under/over estimates own skills and abilities	.727	.912
Undermines others	.831	.906

Table 9. Multidimensional Scaling (PROXSCAL) Results Final Coordinates in 3-Dimensional Space

	Final Coordinates		
	Dimension		
	1	2	3
Accepts feedback	-0.308	-0.568	0.439
Acts aggressively/assertively	0.572	0.286	0.043
Acts calm during crisis	0.101	-0.118	0.604
Acts courteous and respectful	-0.640	-0.092	0.032
Acts creatively/tries new ideas	0.461	0.125	0.582
Acts decisively	0.666	0.106	-0.010
Acts patiently	-0.410	-0.408	0.182
Acts straightforward and honest	0.119	0.245	0.460
Acts with integrity	0.100	-0.019	0.374
Adapts to environment and people	-0.638	0.408	0.138
Adjusts message to audience	-0.514	0.441	0.332
Admits mistakes	-0.243	-0.323	0.579
Analyzes needs	0.079	-0.516	-0.384
Answers questions	-0.383	-0.578	-0.151
Articulates expectations	0.238	-0.145	-0.472
Asks questions	-0.265	-0.608	0.223
Assesses needs/interests	-0.103	-0.571	-0.443
Attends to details	0.303	-0.598	-0.274
Builds a network	-0.488	0.349	-0.197
Builds and maintains relationships	-0.635	0.248	-0.199
Coaches/trains	-0.154	-0.297	-0.596
Commands the respect of others	0.487	0.197	-0.082
Compliments others on valid points	-0.626	-0.014	-0.169
Compromises	-0.652	-0.130	0.213
Considers consequences when making decisions	0.445	-0.271	-0.334
Controls emotions	0.168	0.175	-0.456
Cooperates with others	-0.690	0.060	0.101
Defines objectives	0.591	-0.296	-0.275
Defuses a situation/confronts issues	-0.152	-0.021	0.224
Delegates	0.340	0.127	-0.337

Table 9 (continued).

Delivers presentations	0.281	0.360	-0.561
Demonstrates empathy	-0.628	-0.095	-0.165
Develops a strategy/plan	0.663	-0.166	-0.149
Develops others	-0.313	-0.238	-0.504
Develops rapport	-0.613	0.180	-0.241
Distinguishes big from small errors	0.450	-0.597	-0.281
Evaluates performance	0.236	-0.289	-0.501
Exercises judgment	0.521	-0.014	-0.313
Follows through on commitments	0.135	-0.429	0.345
Follows up with others	-0.098	-0.161	-0.247
Gains power to exercise influence over others	0.459	0.689	-0.086
Gets buy in	-0.100	0.413	0.399
Gets dissimilar people to work together	-0.418	0.085	-0.329
Greets employees and coworkers	-0.619	0.274	-0.016
Handles delicate/confidential situations carefully	-0.441	-0.197	0.333
Handles objections	-0.446	-0.204	0.561
Hears other points of view	-0.627	-0.175	0.088
Holds others accountable for their actions	0.568	0.331	-0.438
Holds self accountable for actions	0.269	-0.130	0.446
Identifies talent	-0.050	-0.229	-0.541
Influences others	0.150	0.507	-0.146
Inspires trust through honesty, competence, and confidence	-0.283	0.069	0.303
Juggles conflicting priorities	0.179	-0.455	-0.238
Knows end goal and what to do to accomplish goal	0.693	-0.202	-0.047
Knows resources	0.365	-0.365	-0.616
Learns unwritten rules	-0.390	0.640	0.322
Listens to concerns	-0.588	-0.275	-0.055
Maintains and enhances self and others' self-esteem	-0.505	-0.232	-0.355
Makes inappropriate/off color comments	0.343	1.064	0.123
Manages impression	-0.199	0.585	-0.164
Micromanages projects	0.430	0.722	-0.488
Models behaviors he/she would like to see others perform	0.050	0.229	-0.446
Modifies reactions to fit the culture	-0.568	0.557	0.127
Motivates others	-0.199	-0.034	-0.522
Negotiates	-0.359	0.233	0.199
Observes the situation and others' behavior	-0.425	0.412	-0.396

Table 9 (continued).

Organizes work	0.479	-0.431	-0.214
Overcomes setbacks	0.372	-0.300	0.485
Persists/works hard	0.584	-0.115	0.495
Persuades	0.015	0.469	-0.131
Plans and organizes his/her time and activities	0.573	-0.431	-0.122
Presents self with proper authority	0.382	0.328	-0.048
Promotes a team environment	-0.495	-0.012	-0.171
Promotes product/service/business/knowledge	0.144	-0.621	0.015
Provides solutions	0.450	-0.477	0.209
Recognizes limitations	-0.120	-0.667	0.018
Recognizes people's efforts	-0.435	-0.229	-0.334
Reconciles opinions	-0.556	-0.054	0.114
Remains firm in decisions/doesn't vacillate	0.695	0.377	-0.070
Resolves conflict	-0.424	-0.401	-0.017
Responds to upset customers	-0.597	-0.110	0.474
Seeks information	0.229	-0.659	0.271
Sees big picture as well as details	0.642	-0.326	0.022
Sets goals	0.627	-0.172	-0.090
Shows a vision	0.692	-0.038	0.125
Shows accessibility/approachability	-0.475	0.051	-0.227
Shows an entrepreneurial spirit	0.633	0.070	0.419
Shows confidence	0.640	0.235	0.209
Shows enthusiasm	-0.008	0.248	0.668
Shows interest	-0.366	0.118	0.512
Shows sensitivity to organizational and national cultures	-0.747	0.295	-0.116
Solves problems	0.346	-0.380	0.233
Takes initiative	0.741	-0.029	0.421
Takes rejection	-0.044	-0.193	0.790
Takes risks	0.679	0.083	0.297
Talks before he/she thinks	0.346	0.895	0.166
Tolerates stress	0.240	-0.116	0.510
Turns negative situation into a positive/learning situation	-0.267	-0.338	0.354
Under/over estimates own skills and abilities	0.377	1.001	-0.048
Undermines others	0.335	1.039	-0.278
Understands the political environment	-0.364	0.645	-0.311
Updates skills	0.263	-0.672	0.157

Table 9 (continued).

Uses democratic decision-making	-0.592	0.026	-0.260
Uses examples when providing feedback	-0.172	-0.396	-0.559
Uses humor to make a point	-0.218	0.595	0.165
Voices opinions	0.360	0.549	0.333
Works as a team player	-0.659	0.084	-0.019

Table 10. Multidimensional Scaling (PROXSCAL) Results Final Coordinates in 4-Dimensional Space

	Final Coordinates			
	Dimension			
	1	2	3	4
Accepts feedback	-0.271	0.539	0.372	0.276
Acts aggressively/assertively	0.556	-0.290	0.006	-0.179
Acts calm during crisis	0.155	-0.031	0.100	0.619
Acts courteous and respectful	-0.540	0.134	-0.244	0.269
Acts creatively/tries new ideas	0.359	-0.168	0.617	0.088
Acts decisively	0.655	-0.071	-0.093	0.045
Acts patiently	-0.349	0.390	-0.044	0.347
Acts straightforward and honest	0.104	0.097	-0.458	0.484
Acts with integrity	0.080	0.267	-0.397	0.404
Adapts to environment and people	-0.545	-0.338	0.310	-0.217
Adjusts message to audience	-0.336	-0.418	0.414	-0.269
Admits mistakes	-0.216	0.437	0.175	0.487
Analyzes needs	0.060	0.518	-0.016	-0.382
Answers questions	-0.365	0.584	0.064	-0.048
Articulates expectations	0.233	0.290	-0.437	-0.119
Asks questions	-0.251	0.381	0.512	-0.079
Assesses needs/interests	-0.116	0.579	-0.112	-0.400
Attends to details	0.287	0.623	-0.207	0.061
Builds a network	-0.477	-0.369	-0.124	-0.181
Builds and maintains relationships	-0.612	-0.234	-0.197	-0.150
Coaches/trains	-0.145	0.357	-0.403	-0.386
Commands the respect of others	0.483	-0.135	-0.275	0.050
Compliments others on valid points	-0.587	-0.006	-0.269	0.093
Compromises	-0.642	0.150	0.172	0.047
Considers consequences when making decisions	0.408	0.360	-0.156	-0.309
Controls emotions	0.147	-0.120	-0.001	-0.559
Cooperates with others	-0.663	-0.093	0.105	0.049
Defines objectives	0.565	0.336	-0.149	-0.200
Defuses a situation/confronts issues	-0.162	-0.020	-0.201	0.552
Delegates	0.309	-0.116	-0.308	-0.326
Delivers presentations	0.235	-0.362	0.406	-0.425
Demonstrates empathy	-0.589	0.108	-0.269	-0.016
Develops a strategy/plan	0.627	0.159	0.037	-0.226
Develops others	-0.296	0.252	-0.414	-0.295
Develops rapport	-0.611	-0.207	-0.214	-0.071
Distinguishes big from small errors	0.380	0.667	-0.099	-0.009
Evaluates performance	0.222	0.365	-0.391	-0.272

Table 10 (continued).

Exercises judgment	0.486	0.127	-0.399	-0.026
Follows through on commitments	0.140	0.481	-0.125	0.389
Follows up with others	-0.113	-0.098	-0.323	0.347
Gains power to exercise influence over others	0.426	-0.662	-0.160	-0.091
Gets buy in	-0.112	-0.413	0.128	0.422
Gets dissimilar people to work together	-0.383	-0.130	-0.416	-0.027
Greets employees and coworkers	-0.584	-0.309	-0.115	0.082
Handles delicate/confidential situations carefully	-0.407	0.087	0.347	-0.258
Handles objections	-0.393	0.062	0.552	0.236
Hears other points of view	-0.611	0.111	0.093	0.075
Holds others accountable for their actions	0.471	-0.141	-0.612	0.060
Holds self accountable for actions	0.261	0.252	-0.187	0.514
Identifies talent	-0.078	0.191	-0.218	-0.530
Influences others	0.127	-0.488	-0.228	-0.210
Inspires trust through honesty, competence, and confidence	-0.208	0.161	-0.550	0.273
Juggles conflicting priorities	0.124	0.309	0.118	-0.502
Knows end goal and what to do to accomplish goal	0.668	0.229	-0.006	-0.033
Knows resources	0.275	0.259	0.070	-0.675
Learns unwritten rules	-0.252	-0.438	0.583	-0.217
Listens to concerns	-0.582	0.239	0.031	-0.066
Maintains and enhances self and others' self-esteem	-0.436	0.246	-0.439	-0.002
Makes inappropriate/off color comments	0.280	-0.951	-0.208	0.305
Manages impression	-0.142	-0.524	0.113	-0.364
Micromanages projects	0.351	-0.498	-0.708	0.024
Models behaviors he/she would like to see others perform	0.091	-0.008	-0.598	0.092
Modifies reactions to fit the culture	-0.475	-0.474	0.327	-0.232
Motivates others	-0.166	0.070	-0.476	-0.288
Negotiates	-0.349	-0.267	0.222	0.180
Observes the situation and others' behavior	-0.365	-0.227	0.347	-0.455
Organizes work	0.423	0.478	0.049	-0.216
Overcomes setbacks	0.354	0.216	0.217	0.483
Persists/works hard	0.578	0.119	0.095	0.470
Persuades	0.033	-0.486	0.012	-0.221
Plans and organizes his/her time and activities	0.537	0.465	0.035	-0.056
Presents self with proper authority	0.377	-0.277	-0.306	0.054
Promotes a team environment	-0.498	-0.033	-0.216	-0.026

Table 10 (continued).

Promotes product/service/business/knowledge	0.134	0.141	0.465	-0.438
Provides solutions	0.372	0.377	0.404	0.141
Recognizes limitations	-0.157	0.529	0.265	-0.299
Recognizes people's efforts	-0.424	0.232	-0.343	-0.129
Reconciles opinions	-0.540	-0.079	0.103	0.217
Remains firm in decisions/doesn't vacillate	0.664	-0.327	-0.228	0.015
Resolves conflict	-0.425	0.348	0.082	0.173
Responds to upset customers	-0.448	-0.133	0.426	0.388
Seeks information	0.143	0.319	0.639	-0.135
Sees big picture as well as details	0.589	0.281	0.227	-0.154
Sets goals	0.610	0.159	0.038	-0.138
Shows a vision	0.667	-0.007	0.166	-0.035
Shows accessibility/approachability	-0.459	-0.029	-0.337	0.093
Shows an entrepreneurial spirit	0.548	-0.146	0.445	0.169
Shows confidence	0.640	-0.231	0.077	0.163
Shows enthusiasm	0.033	-0.252	0.536	0.359
Shows interest	-0.393	0.086	0.317	0.386
Shows sensitivity to organizational and national cultures	-0.634	-0.216	0.122	-0.346
Solves problems	0.276	0.230	0.464	0.052
Takes initiative	0.647	-0.062	0.482	0.105
Takes rejection	-0.018	0.119	0.545	0.551
Takes risks	0.618	-0.154	0.325	0.108
Talks before he/she thinks	0.278	-0.786	-0.285	0.319
Tolerates stress	0.245	0.072	0.225	0.489
Turns negative situation into a positive/learning situation	-0.227	0.189	-0.025	0.545
Under/over estimates own skills and abilities	0.334	-0.950	-0.010	-0.101
Undermines others	0.284	-0.933	-0.377	-0.165
Understands the political environment	-0.273	-0.397	0.320	-0.544
Updates skills	0.172	0.195	0.606	-0.306
Uses democratic decision-making	-0.569	-0.071	-0.286	-0.083
Uses examples when providing feedback	-0.116	0.494	-0.453	-0.160
Uses humor to make a point	-0.205	-0.610	0.111	0.094
Voices opinions	0.330	-0.568	0.190	0.254
Works as a team player	-0.636	-0.112	-0.096	0.151

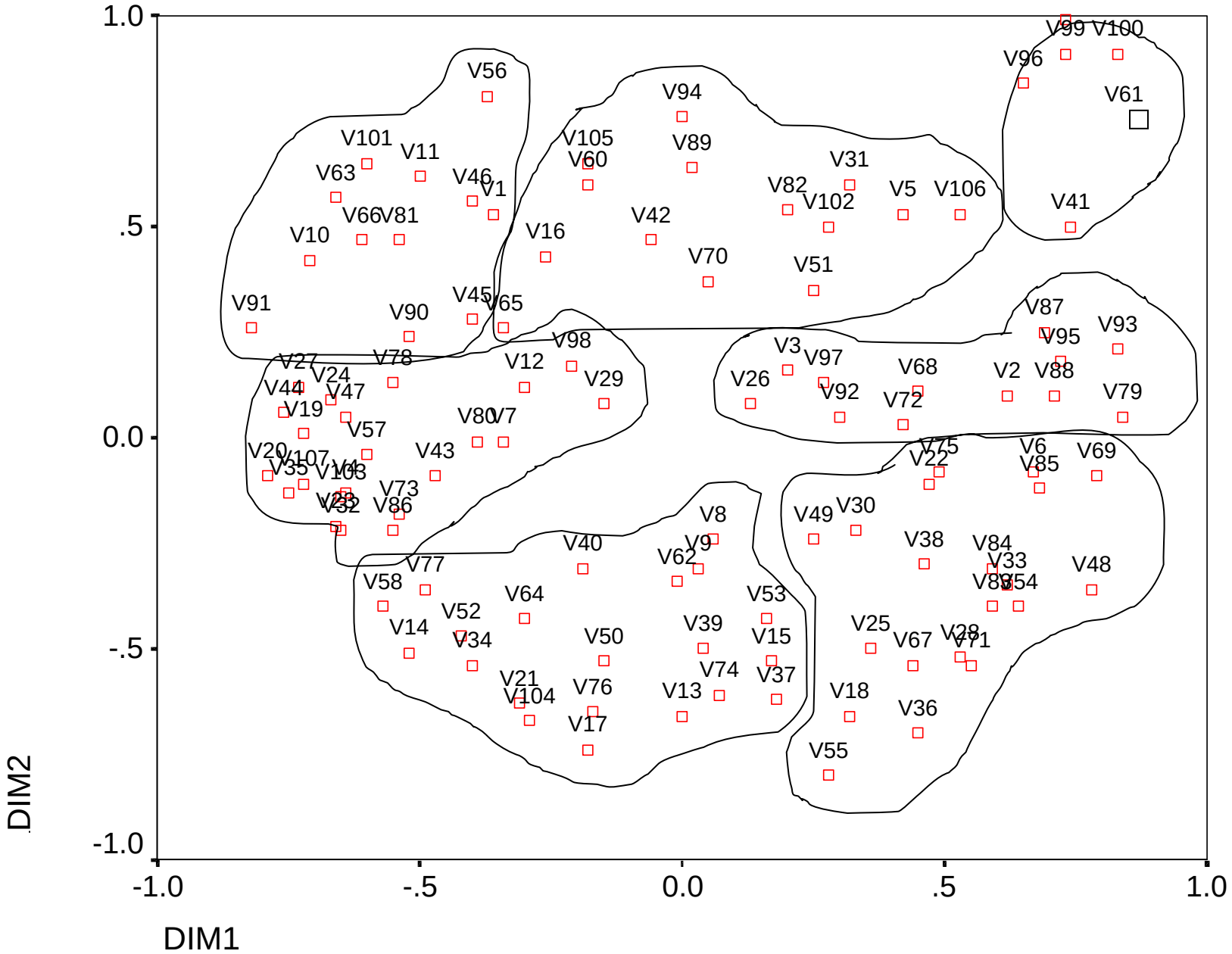

Figure 6. Scatterplot of Variables' Final Coordinates from PROXSCAL Analysis (2-dimensional solution)

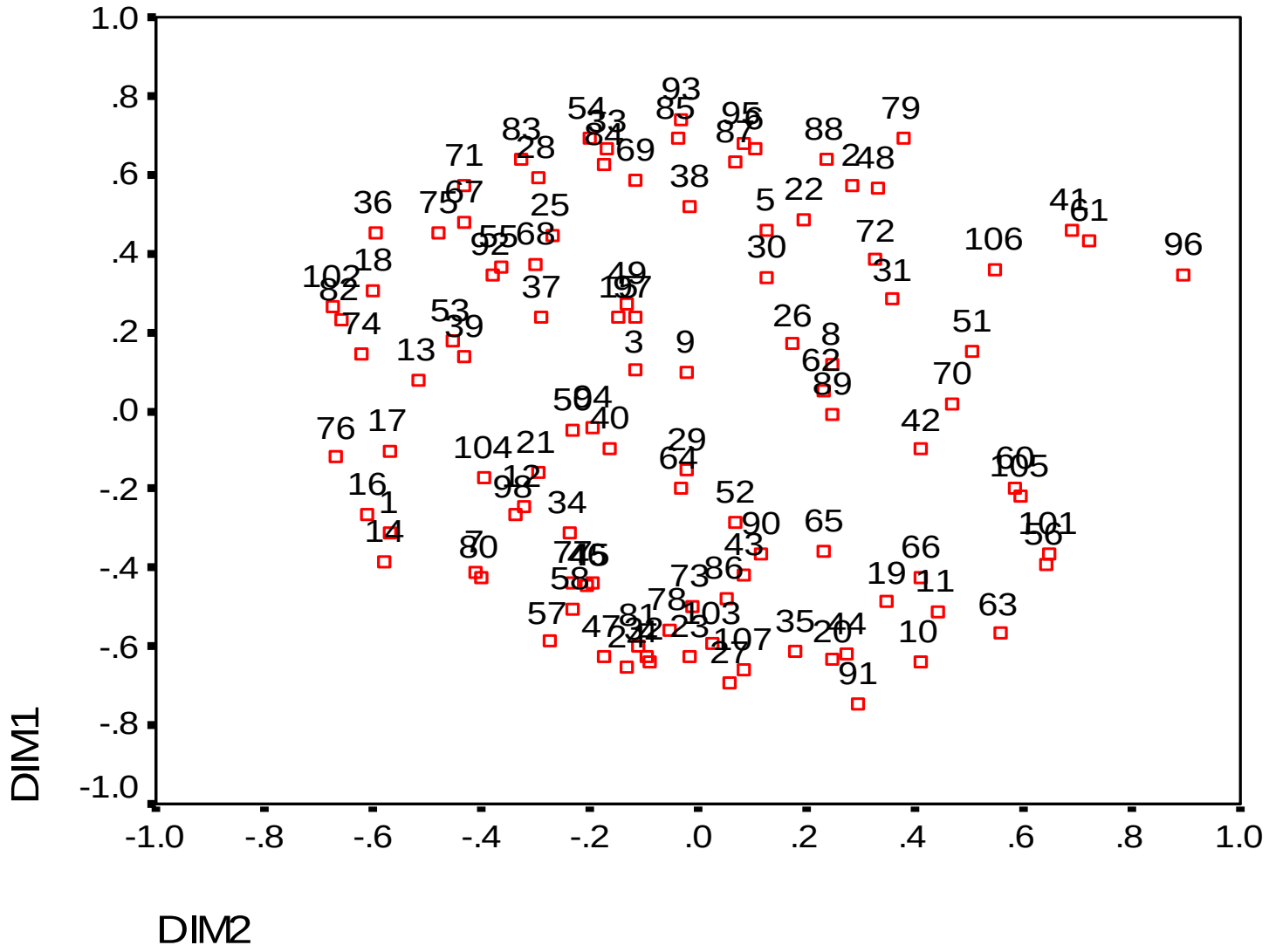

Figure 7. Scatterplots of Variables' Final Coordinates From PROXSCAL Analysis (3-dimensional solution)

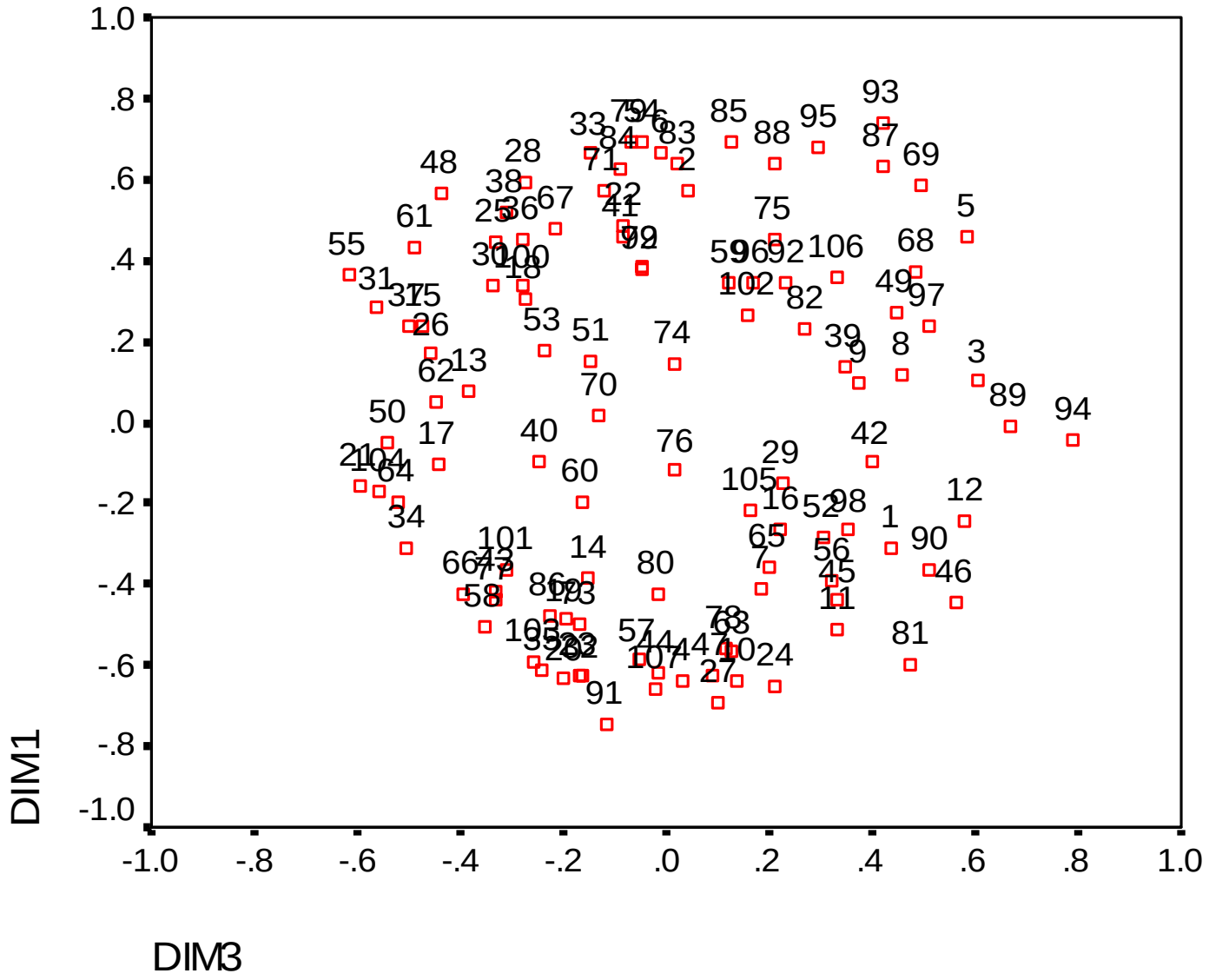

Figure 7 continued.

Interpretation of the Final Clusters

Used in tandem, hierarchical cluster analysis and multidimensional scaling (using PROXSCAL) showed that a 7-cluster solution appeared to provide the best fit to the data set in terms of (1) an incremental jump in distance coefficients based on the agglomeration schedule, (2) examination of the dendogram results suggesting a seven-cluster solution, (3) and separation of clusters in 2-dimensional space. Following this procedure yielded seven sensible, interesting, and coherent categories that describe the domain of soft skills. In terms of Hypothesis 1 (i.e., that soft skills would comprise four categories), data from this study support the existence of seven clusters. As such, Hypothesis 1 was not supported.

Cluster 1 is labeled Communication/Persuasion Skills. It includes behaviors generally aimed at communicating with others, in terms of asking questions, delivering presentations, influencing others, negotiating, persuading, and seeking information. Cluster 2 is labeled Performance Management Skills. This cluster encompasses behaviors involved in managing the work of others and managing projects. It includes activities such as analyzing needs, articulating expectations, coaching/training, developing others, and evaluating performance. Cluster 3 is labeled Self-Management Skills, which are aimed at managing, controlling, and regulating one's own behaviors. This cluster includes acting calm during a crisis, controlling emotions, and tolerating stress. Cluster 4 is labeled Interpersonal Skills, which describe work behaviors that involve interacting with others in work situations. It includes acting courteous and respectful, building a network, complimenting others on valid points, compromising, developing rapport, and reconciling opinions. Cluster 5 is called Leadership/Organization Skills, which involve

envisioning and implementing plans and strategies. This cluster includes developing strategies/plans, showing a vision, providing solutions, and setting goals. Cluster 6 is termed Political/Cultural Skills and involves demonstrating competence with respect to functioning in the culture and climate of an organization. This cluster includes behaviors such as adapting to environments and people, adjusting a message to an audience, learning unwritten rules, and modifying reactions to fit the culture. Finally, Cluster 7 is called Counterproductive Work Skills, or behaviors associated with negatively impacting organizational performance. It includes making inappropriate comments and undermining others.

Discussion

This study has shown that the domain of soft skills is not one-dimensional, but is instead comprised of several relatively distinguishable clusters. Participants sorted the behaviors determined from Study 1, and statistical techniques were applied to results of the sorting task. Seven interpretable clusters were found in this study. Hierarchical cluster analysis revealed several potential solutions: 7-, 4-, or 2-cluster solutions. A complementary method, multidimensional scaling, revealed that a 7-cluster solution explained the data the best and provided the most interesting solution. Overall, these results lead to two main conclusions: (1) there are identifiable clusters among the behavior exemplars of soft skills, (2) the clusters are fewer in number but similar in content to the clusters identified in Study 1.

While qualitative results from Study 1 suggested that ten dimensions underlie the domain of soft skills performance, quantitative techniques in Study 2 suggest the

presence of seven clusters. Since dimensions in Study 1 were conceptually related, it was not surprising that the data cluster analyzed to fewer clusters in Study 2. That is, categories from Study 1 such as leadership and organization skills yielded a coherent category in Study 2. The results obtained in Study 2 are more compelling than those obtained in Study 1 for two reasons: (1) the procedure used a quantitative rather than a qualitative approach and (2) data were collected from a sample of participants rather than using my categorization of the behaviors.

The relatively large number of clusters found in this study indicates that much prior research in this domain has neglected important areas of the soft skills construct space. Results indicate that research related to soft skills has left out many important aspects of the domain (e.g., political skills, skills associating with selling an idea/product/business/service). Inclusion of these clusters suggests that a broader perspective is needed to fully elucidate the domain.

Limitations and Future Directions

The main difference between the qualitative and quantitative cluster analyses results is related to counterproductive work behaviors. In Study 1, these behaviors were categorized in terms of the underlying behavior. That is, behaviors were placed in the same category according to whether they shared similar properties (e.g., "makes inappropriate/off color comments" and "hears other points of view" were both categorized as communication skills). In Study 2, however, behaviors such as "makes inappropriate/off color comments" clustered with other behaviors that shared a negative workplace connotation, such as "undermines others." Participants saw these behaviors

emerge as a category. Methodologically, instructions on coding stimuli in terms of underlying behaviors (rather than whether a behavior had a positive or negative connotation) may have resulted in a different set of final categories.

It is possible that some or all of these clusters may be divisible into more than one lower-order cluster. The 7-cluster solution should be run on a cross-validation sample to see if final clustering is similar to the clusters derived for this sample of participants. Also, a discriminant analysis using the final clusters could be performed in order to test whether clusters form according to observations specified a priori. Profiling could also be performed to test using other variables that were not part of the cluster analysis to ascertain if the clusters make sense with other variables. These analyses can be conducted by obtaining sorting data on a cross-validation sample.

CHAPTER 6

STUDY 3: DEVELOPMENT AND CONSTRUCT VALIDATION OF A MEASURE OF SOFT SKILLS PERFORMANCE

Method

Overview

The purpose of this study was to design a multi-dimensional measure of soft skills for performance for assessment from two perspectives – self and supervisor, and to examine its relation with theoretically-relevant individual differences. Based on results obtained from Studies 1 and 2 a new measure of soft skills performance was created. Specifically, results of analyses in Study 2 were used to identify seven clusters of the soft skills performance construct space. Critical incidents provided from SMEs and rational procedures were used to generate items that assessed the behaviors on the master list of soft skills. The measure was designed to assess soft skills performance as rated by self and supervisor to provide an index of agreement between rating sources. The soft skills measures were administered along with a battery of individual differences predictors (e.g., personality, motivational traits, self-efficacy, demographic information) and performance measures in the soft skills domain (i.e., teamwork knowledge, skills, and abilities) to determine the predictive validity of non-ability traits for soft skills performance.

Construction of the Measure of Soft Skills Performance

The master list of soft skills behaviors from Study 1 and results of the analyses in Study 2 were used to construct a measure of soft skills performance from two

perspectives – self and other. The clusters were selected as preliminary scales, and items were written to tap these scales. The purposes of developing a measure of soft skills performance were to: (1) determine the construct space in terms of relations with individual differences and (2) determine the psychometric properties of this new measure. The number of items on each scale ranged from 6 to 22 items. To make the items appropriate for self-rating, they were worded in the first person. Items in the supervisor-version were worded in the third person. The final set of measures is provided in Appendix B.

The soft skills performance questionnaire (SSPQ; see Appendix B) is a 107-item self-report instrument. The self-rated SSPQ asks participants to rate themselves on two scales: (1) how well they meet performance standards for each behavior and (2) how well they performed each of the behaviors in comparison to other working students. The supervisor-rated SSPQ asks participants to rate Co-op students' performance on 2 scales: (1) how well the employee meets performance standards for each behavior and (2) how the employee's performance compares to other working students. The scale used for the performance standard scale for both measures was anchored as follows: n/a = no basis for judgment, 1 = does not meet standard at all, 2 = partially meets standard, 3 = meets standard, 4 = exceeds standard, 5 = greatly exceeds standard. The scale for the comparative performance scale was anchored as follows: n/a = no basis for judgment, 1 = much worse than others, 2 = slightly worse than others, 3 = same as others, 4 = slightly better than others, 5 = much better than others. The performance standard scale was used for analyses.

Participants

Participants were 162 (105 men [64.8%]) undergraduate students participating in the Georgia Tech Co-op program (a program where students work in full-time, paid, and supervised work experiences in business, industry, education, and government on an alternating semester basis) and 118 supervisors of these students. Student participants' age ranged from 18 to 32 (M = 20.89, SD = 1.91). In terms of self-reported race, 129 (79.6%) were Caucasian, 10 (6.2%) were African American, 2 (1.2%) were Hispanic, 15 (11.6%) were Asian, and 5 (3.1%) reported other, and data for one participant was missing. Four participants (2.5%) reported their current class standing was freshman, 38 (23.4%) reported their current class standing was sophomore, 71 (43.8%) reported their current class standing was junior, and 49 (30.2%) reported their current class standing was senior. Supervisors had an average of 5.4 years in their current position (SD = 5.17 years), and an average of 10.29 years in their respective organizations (SD = 7.55 years). These descriptive statistics indicate that work experience was not normally distributed among supervisors. Student participants received the option of course credit for participating in this study or the opportunity to have their name entered into a drawing for a cash prize. Supervisors received a summary of the study's findings on the applications for hiring and career development practices.

A power analysis (Cohen, 1992) indicated that a sample of at least 85 would provide adequate power (.80) to find a medium effect (r = .3). In terms of power of the model in Figure 2 to fit the data (c.f., MacCallum, Browne, & Sugawara, 1996), 135 participants were needed to achieve a good fitting model (i.e., RMSEA < .05; power = .65) and 150 participants were needed to achieve higher power (i.e., RMSEA < .05;

power = .75). Since the number of clusters of soft skills performance found in Study 2 was greater than the number of hypothesized dimensions, the power analysis was re-computed. In terms of the power of the model to fit the data with 7 clusters of soft skills performance, 125 participants were needed to achieve a good fitting model (i.e., RMSEA < .05; power = .74) and 140 participants were needed to achieve higher power (i.e., RMSEA < .05; power = .81).

Soft skills performance data from 19 student participants were excluded due to substantial missing data. In addition, descriptive statistics on the individual differences measures were calculated to look for outliers in the data. It was determined that no participants scored three standard deviations above or below the mean for this sample on any of the scales.

Measures

In addition to the SSPQ previously described, participants completed a series of measures to assess non-ability individual differences.

Soft Skills Performance Biodata.

Biodata items (i.e., background data referring to retrospective, self-report items presented in a quasi-longitudinal format; Mumford & Stokes, 1992) were constructed to obtain information about past experiences and behavior related to each of the identified areas of soft skills performance obtained in Study 2. Items written refer to behavior and experiences occurring in specific situations to which individuals are likely to have been exposed. Seven objective self-report soft skills performance indicators were obtained: (1)

number of presentations given during the current work rotation (M = 1.64, SD = 2.21), (2) number of co-workers he/she regularly interacts with (M = 9.69, SD = 8.56), (3) number of times he/she regulates his/her emotions in the course of a week (M = 1.49, SD = 2.87), (4) percent of time he/she oversees the work of others (M = 8.40, SD = 16.56), (5) the number of leadership positions held in high school and college (M = 2.81, SD = 2.11), (6) the number of work-related decisions made a week (M = 10.55, SD = 13.46), and (7) the number of people he/she considers to be in his/her professional network (M = 11.81, SD = 13.62). An objective soft skills performance composite, derived from these indicators, was created. Each variable was standardized and summed to obtain the composite. Specifically, each of the seven variables was standardized such that the mean of each variable was zero. A composite was created based on the individual standardized variables.

Demographic/Work Background Information.

Information on participants' age, gender, race, class standing (i.e., freshman, sophomore, junior, senior), years and months of part-and full-time work experience, number of semesters spent participating in the Co-op program, number of different Co-op assignments, tenure of current Co-op assignment, and characterization of work (independent vs. team-orientation) was collected. These variables were explored in terms of their relations with soft skills performance. These relations were exploratory, and no hypotheses were made regarding age, gender, or education differences.

On average, participants had participated in 2.51 semesters of Co-op work experience (SD = 1.31 semesters), with an average of 1.14 employers (SD = .49

employers). Years of full-time work experience ranged from 0 to 8.25 (M = 1.05, SD = 1.17). Current years of part-time work experience ranged from 0 to 11 (M = 2.16, SD = 2.04). Given the large standard deviation, these descriptive statistics indicate that part-time work experience were skewed. Forty-five participants (29.6%) characterized their work as "individual contributor; my tasks are solitary and completed independently." One hundred seven (70.4%) characterized their work as "working with others in a team to complete projects or tasks." Data from 10 participants were missing.

Personality.

FFM factors from the NEO-FFI (Costa & McCrae, 1992) were chosen for this study. Interpersonal-oriented personality scales (agreeableness and extroversion) were chosen to assess tendencies and dispositions related to dealing with people. Conscientiousness was selected because of its pervasive relationships with a variety of work outcomes (e.g., task performance, contextual performance, see Barrick & Mount, 1991). Scales included *agreeableness* (tendency to be courteous, flexible, trusting, good-natured, cooperative, forgiving, empathic; e.g., "Believe that others have good intentions"), *conscientiousness* (tendency to be dependable, careful, thorough, responsible, organized, efficient; e.g., "Am always prepared"), and *extroversion* (the extent to which an individual is outgoing, active, and high-spirited; e.g., "Make friends easily"). Participants rated how true each state was for them on a 6-point scale (1 = *very untrue of me* to 6 = *very true of me*).

Motivational Traits.

The 48-item Motivational Trait Questionnaire (MTQ; Heggestad & Kanfer, 2000; Kanfer & Ackerman, 2000) measures two broad motivational trait clusters, achievement and anxiety. The achievement trait includes approach-oriented behavior. The anxiety trait is composed of several related constructs including general anxiety, test anxiety, and fear of failure. Subscales from the MTQ were *desire to learn* (need for achievement in the context of learning new skills or acquiring knowledge), *mastery* (personal goal setting with an orientation associated with continued task improvement), *worry* (worry and evaluation apprehension in performance contexts), *emotionality* (emotions associated with performance in evaluation contexts), *competitiveness* (comparisons about personal performance with others), and *other-referenced goals* (comparisons to other performers for the purpose of establishing a social reference context for the individual's performance). Kanfer and Ackerman (2000) reported that the internal consistency reliability estimates for the scales were .81 (desire to learn), .83 (mastery), .89 (competitiveness), .88 (worry), .79 (emotionality), and .85 (other-referenced goals). Participants rated how true each state was for them on a 6-point scale (1 = *very untrue of me* to 6 = *very true of me*).

Self-Efficacy.

A 31-item measure was created that assessed individuals' confidence with respect to performing soft skills. Items were written to reflect the scales of soft skills performance found in Study 2. Example items include "acting decisively" and "influencing others," and "overcoming setbacks." Items reflected the clusters of soft

skills performance based on results of Study 2. Scores on these items were summed to create a composite/overall self-efficacy measure. Consistent with the measurement of self-efficacy for specific tasks (c.f., Bandura, 1986), participants rated how confident they were for performing each behavior using 8-point scale (1 = *no confidence* to 8 = *certain*).

Teamwork Knowledge, Skills, and Abilities.

Stevens and Campion's (1999) Teamwork KSA test were used to provide evidence for convergent relations with the soft skills performance measures. The Teamwork KSA test is a situational judgment test that was designed to measure how people react to situations in a team-oriented work environment. This measure consists of 35 hypothetical teamwork situations, and participants are instructed to select from a set of four responses. Findings by Stevens & Campion (1999) show evidence of content validity as well as criterion-related validity (i.e., $r = .52$, $p < .05$ with a ratings of overall performance, $r = .44$, $p < .05$ with ratings of teamwork performance for a sample of mill workers) with supervisor and peer ratings and overall job performance.

Cognitive Ability and Academic Performance.

Markers of general intelligence were also included in this research to explore relations in terms of ability predictors of job performance, since a substantial body of research in industrial/organizational psychology demonstrates the sizable predictive validity of ability variables for job performance (c.f., Kanfer & Kantrowitz, 2002 for a review). These variables were also included in order to assess the relative predictive validity of ability and non-ability traits.

The following self-report data were collected from the participants: (1) cumulative college GPA and (2) SAT scores (verbal and quantitative). Participants cumulative GPA ranged from 2.0 to 4.0 (M = 3.16, SD = .45). Verbal SAT scores ranged from 480 to 780 (M = 631.72, SD = 71.61). Quantitative SAT scores ranged from 400 to 800 (M = 681.42, SD = 67.95). Aggregated SAT (i.e., Verbal and Quantitative scores combined) ranged from 650 to 1570 (M = 1311.81, SD = 121.27).

Procedure

Participants were recruited through the Georgia Tech Co-op program. Potential participants were emailed an invitation to participate in the study. Participants were invited to participate in the study if they were currently enrolled in the Co-op program and on a work rotation. Participants were e-mailed a link to the consent form and the questionnaire, and were instructed to complete the measures of self-rated soft skills performance, demographic information, personality, self-efficacy, and motivational traits online in a quiet environment. Participants were also asked to provide the name and email/mailing address of his/her supervisor. Supervisors were then e-mailed a link to the consent form and questionnaire. All participants were ensured that neither their supervisors/employees nor anyone in the Co-op program would see their responses.

Results

The analyses are presented below in five sections. The first section reviews descriptive statistics, reliability estimates, and intercorrelations among the predictor measures. In the next section, I report descriptive statistics, reliability estimates, and intercorrelations among clusters of soft skills performance. In the third section, results are

provided for the relationships between predictors and soft skills performance. In the fourth section, I report hierarchical regression analysis results. In the final section, I report results of path analyses.

Descriptive Statistics for Predictor Variables

Descriptive statistics and correlations among all measures were reviewed and the reliability of measures was evaluated using internal consistency reliability estimates. The internal reliability estimate assesses the degree of homogeneity of the items within each scale and indicates the extent to which each scale is internally consistent. If measures were found to have inadequate reliability (e.g., internal consistency reliability less than .70, Nunnally, 1978), this information was taken into consideration for the analyses. An alpha magnitude of at least .70 is important and necessary in order to capture valid variance between predictors and criteria. This information is important to consider because internal consistency reliability estimates confound reliability and item homogeneity. That is, the criterion of an internal consistency estimate is the measure's total score or the extent to which a test is measuring a single construct (i.e., item homogeneity). However, it does not explicitly assess the degree of consistency with which it is designed to measure (i.e., reliability). A test-retest reliability estimate would more appropriately measure this type of consistency, but is only assessed with a longitudinal design.

Descriptive statistics, internal reliability estimates (Cronbach's α), and intercorrelations between predictors are shown in Table 11. As can be seen, internal reliability estimates for all predictor measures exceeded the pre-determined alpha

magnitude of .70 for all measures. Furthermore, it is useful to examine the patterns of relations among predictor measures to assess multicollinearity. As can be seen, scales were often significantly correlated but not to the limits of their reliability.

Table 11. Descriptive Statistics, Internal Reliability Estimates, and Intercorrelations between Predictor Variables

	Mean	SD	1	2	3	4	5	6	7
1. Extroversion	52.11	7.69	*.80*						
2. Agreeableness	55.03	6.84	.56**	*.76*					
3. Conscientiousness	57.15	7.09	.44**	.39**	*.82*				
4. Mastery	35.94	5.46	.19*	.15	.54**	*.83*			
5. Desire to Learn	36.45	5.46	.19*	.14	.46**	.74**	*.84*		
6. Worry	35.92	7.95	-.22**	-.11	-.14	-.03	.04	*.85*	
7. Emotionality	24.60	6.30	-.23**	-.20*	-.31**	-.14	-.08	.65**	*.77*
8. Competitive Excellence	20.86	5.23	.20*	-.11	.17*	.16*	.04	-.25**	-.12
9. Other-Referenced Goals	27.73	5.37	.14*	-.12	.20*	.36**	.23**	.16*	.15
10. Soft Skills Performance Self-Efficacy	170.15	31.36	.40**	.21**	.45**	.40**	.40**	-.10	-21**
11. Objective Soft Skills Performance	.00	3.03	.09	.04	.11	.07	-.01	.07	.03
12. Overall Teamwork KSAs	23.33	6.81	.10	.26**	.10	.16*	.19*	.01	-.07
13. Overall SAT Score	1311.81	121.27	-.03	-.05	.14	.10	.19*	-.08	-.09
14. GPA	3.16	.45	-.06	-.06	.12	.23**	.31**	-.04	-.03
15. Gender[b]	1.35	.48	.30**	.32**	.26**	.10	.05	.03	.09
16. Age	20.89	1.91	-.01	.07	.01	-.02	.03	-.07	-.08
17. Race[c]	1.80	.40	-.01	-.01	.06	.02	-.12	-.03	-.07
18. Work Type	1.70	.46	-.05	-.13	-.02	.04	.03	.06	.07

Note. N = 162.
* $p < .05$, ** $p < .01$
Reliability of scales shown on the diagonal
[a] Internal consistency reliability estimate is reported from validation study (Stevens & Campion, 1999)

[b] Gender coded 1=male, 2 = female

[c] Race coded 1=white, 2 = non-white

Table 11 (continued).

	8	9	10	11	12	13	14	15	16	17
1. Extroversion										
2. Agreeableness										
3. Conscientiousness										
4. Mastery										
5. Desire to Learn										
6. Worry										
7. Emotionality										
8. Competitive Excellence	*.85*									
9. Other-Referenced Goals	.58**	*.82*								
10. Soft Skills Performance Self-Efficacy	.12	.16*	*.95*							
11. Objective Soft Skills Performance	-.01	.02	.23**	--						
12. Overall Teamwork KSAs	-.16*	-.06	.22**	.04	*.80*[a]					
13. Overall SAT Score	.09	.09	.06	-.09	.19*	--				
14. GPA	.10	.14	-.02	.01	.00	.52	--			
15. Gender[b]	-.06	-.01	.18	.01	.07	-.21	-.06	--		
16. Age	-.06	-.23**	.11	.02	-.02	-.31	-.06	.12	--	
17. Race[c]	.07	.11	-.05	.01	.12	.12	.02	.05	-.25**	--
18. Work Type	.01	.05	.06	.16*	.00	.04	.03	-.17*	-.18*	.04

Note. N = 162.
* $p < .05$, ** $p < .01$
Reliability of scales shown on the diagonal
[a] Internal consistency reliability estimate is reported from validation study (Stevens & Campion, 1999)

[b] Gender coded 1=male, 2 = female

[c] Race coded 1=white, 2 = non-white

Descriptive Statistics for Criteria

In line with the final clusters from Study 2, dimensions of soft skills were derived based on rational procedures and item analyses. An item-level factor analysis was not conducted on the SSPQ because this type of analysis tends to be unstable (c.f., Bernstein & Teng, 1989) given that the data are not truly continuous or multivariate normal. Instead, composites were formed and item-total correlations were examined. Internal consistency estimates were calculated, and dimensions of soft skills were intercorrelated.

Table 12 shows the intercorrelations between scales of the SSPQ (self- and supervisor-rated versions). As can be seen, dimensions of self-rated soft skills performance are significantly intercorrelated (correlations range from .83 to .97), as are dimensions of supervisor-rated soft skills performance (correlations range from .79 to .96). This positive manifold suggests the presence of a general factor, which represents common variance shared across all the dimensions (c.f., Viswesvaran, Schmidt, & Ones, in press).

Correlations between self and supervisor ratings were computed and provided in Table 12. The range of correlations between self-rated soft skills and supervisor-rated soft skills was .07 (CI = -.11 to .25) to .21 (CI = .03 to .40). As shown in Table 12, the relationship between self- and supervisor-ratings of soft skills performance was generally small. Self-rated self-management skills were positively correlated with supervisor-rated self-management skills (r = .20). Self-rated interpersonal skills were positively correlated with supervisor-rated communication skills (r = .20), self-management skills (r = .20), and political/cultural skills (r = .18). Self-rated political/cultural skills were positively correlated with supervisor-rated communication skills (r = .21), leadership/organization

skills (r = .21), performance management skills (r = .20), self-management skills (r = .21), interpersonal skills (r = .21), and political/cultural skills (r = .21).

Table 12. Descriptive Statistics and Intercorrelations between Scales of the SSPQ

	Mean	SD	1	2	3	4	5	6	7	8
1. Communication/Persuasion Skills - self	50.64	14.15	*.93*							
2. Leadership/Organization Skills – self	78.38	20.67	.96**	*.95*						
3. Performance Management Skills – self	81.29	21.51	.95**	.97**	*.95*					
4. Self-Management Skills – self	38.70	10.38	.91**	.92**	.93**	*.89*				
5. Interpersonal Skills – self	86.69	22.41	.94**	.97**	.96**	.92**	*.95*			
6. Political/Cultural Skills – self	53.42	13.38	.94**	.94**	.94**	.89**	.93**	*.94*		
7. Counterproductive Skills - self	21.50	7.06	.89**	.88**	.90**	.88**	.86**	.83**	*.82*	
8. Communication/Persuasion Skills – sup	53.36	10.69	.17	.15	.15	.18	.20*	.21*	.17	*.90*
9. Leadership/Organization Skills – sup	83.42	14.82	.15	.16	.14	.17	.18	.21*	.15	.91**
10. Performance Management Skills – sup	85.28	17.18	.13	.14	.13	.18	.17	.20*	.15	.93**
11. Self-Management Skills – sup	49.40	10.23	.15	.17	.14	.20*	.20*	.21*	.14	.92**
12. Interpersonal Skills – sup	90.60	17.92	.13	.13	.13	.15	.17	.21*	.13	.94**
13. Political/Cultural Skills – sup	55.21	10.03	.15	.16	.14	.18	.18*	.21*	.14	.92**
14. Counterproductive Skills - sup	21.18	6.40	.09	.08	.07	.11	.10	.08	.13	.82**

Note. N = 143 for intercorrelations between self-rated scales, N = 118 for intercorrelations between supervisor-rated scales, N = 112 for intercorrelations between self- and supervisor-rated scales.
* $p < .05$, ** $p < .01$
Reliability of scales shown on the diagonal

Table 12 (continued).

	9	10	11	12	13	14
1. Communication/Persuasion Skills - self						
2. Leadership/Organization Skills – self						
3. Performance Management Skills – self						
4. Self-Management Skills – self						
5. Interpersonal Skills – self						
6. Political/Cultural Skills – self						
7. Counterproductive Skills - self						
8. Communication/Persuasion Skills – sup						
9. Leadership/Organization Skills – sup	*.92*					
10. Performance Management Skills – sup	.94**	*.93*				
11. Self-Management Skills – sup	.90**	.90**	*.90*			
12. Interpersonal Skills – sup	.95**	.96**	.92**	*.94*		
13. Political/Cultural Skills – sup	.90**	.92**	.93**	.92**	*.91*	
14. Counterproductive Skills - sup	.80**	.83**	.79**	.81**	.78**	*82*

Note. N = 143 for intercorrelations between self-rated scales, N = 118 for intercorrelations between supervisor-rated scales, N = 112 for intercorrelations between self- and supervisor-rated scales.
* $p < .05$, ** $p < .01$
Reliability of scales shown on the diagonal

A maximum likelihood factor analysis was conducted using the intercorrelations among self-ratings and supervisor-ratings to determine whether one general factor underlies the domain of soft skills performance (separately for self and supervisor ratings). One factor explained 92.0% of the variance in the intercorrelations between self-ratings, and one factor explained 89.1% of the variance in the intercorrelations between supervisor ratings. Table 13 displays factor loadings for these analyses.

Table 13. Factor Loadings for Maximum Likelihood Factor Analysis of Self- and Supervisor-Ratings

	Self-Rated Soft Skills Performance	Supervisor-Rated Soft Skills Performance
Communication Skills	.97	.96
Leadership Skills	.99	.96
Performance Management Skills	.98	.97
Self-Management Skills	.94	.94
Interpersonal Skills	.98	.98
Political/Cultural Skills	.95	.95
Counterproductive Skills	.90	.84

Given that the intercorrelations among scales of the self-rated SSPQ and scales of the supervisor-rated SSPQ were large, a composite measure was created separately for self and supervisor ratings. A composite was computed that was the sum of the scales. Subsequent analyses will use this composite measure for the analysis of the predictive validity of non-ability traits in the prediction of soft skills performance.

Convergent Validity

Convergent validity was examined for the following relationships: (1) overall self-rated soft skills and overall supervisor-rated soft skills, (2) overall self-rated soft skills and individual-level teamwork KSAs, (3) overall supervisor-rated soft skills and

individual-level teamwork KSAs. In line with Hypothesis 2, it was expected that self- and supervisor-rated soft skills would be moderately correlated (i.e., r = .30). As shown in Table 14, the correlation between self- and supervisor-rated soft skills performance was non-significant. As such, convergent validity between sources of rating performance was not obtained and Hypothesis 2 was not supported. The relationship between supervisor-rated soft skills and individual-level teamwork KSAs was significant and positive, but non-significant for self-rated soft skills performance. Findings for the relationship between dimensions of soft skills performance and individual-level teamwork KSAs are mixed; convergent validity (albeit of a small magnitude) was obtained for supervisor ratings but not for self ratings.

Table 14. Correlations between Teamwork KSAs and Composite Self- and Composite Supervisor-Rated Soft Skills Performance

	Overall Teamwork KSA Score		Self-Rated Soft Skills Performance		Supervisor-Rated Soft Skills Performance	
	r	CI	*r*	CI	*r*	CI
Overall Teamwork KSA Score	--					
Self-Rated Soft Skills Performance	-.15	-.30, .00	--			
Supervisor-Rated Soft Skills Performance	.24*	.09, .40	.17	-.02, .36	--	

Note: N = 143 for correlation between Teamwork KSAs and self-rated soft skills performance; N = 118 for correlation between Teamwork KSAs and supervisor-rated soft skills performance; N = 112 for correlation between self- and supervisor-rated soft skills performance
* $p < .05$, ** $p < .01$

Correlations between Predictors and Criteria

The predictive validity analysis of personality and motivational variables for self- and supervisor-rated soft skills performance was performed to evaluate whether the independent contributions of personality and motivational variables were separately related to individual differences in self- and supervisor-rated performance. Table 15 shows the correlations between personality and motivational predictors and self- and supervisor-rated soft skills performance dimensions. As can be seen, most non-ability variables were significantly and substantially related to soft skills performance.

In terms of the hypothesized relations, Hypotheses 3, 4, and 5 described the relationships between distal predictors (personality and motivational traits) and soft skills performance and between the proximal variable (self-efficacy) and soft skills performance. Specifically, Hypothesis 3 stated that the relationship between personality (extroversion, agreeableness, and conscientiousness) and achievement traits (mastery, desire to learn, competitive excellence) and soft skills performance would be positive and small-to-medium-sized (i.e., r = .20-.30). Hypothesis 4 stated that the relationship between anxiety traits (worry, emotionality, other-referenced goals) and soft skills performance would be negative and small-to-medium sized (i.e., r = .20-.30). Hypothesis 5 stated that the relationship between self-efficacy and soft skills performance would be positive and of larger magnitude than the relationships between personality, motivational traits, and soft skills performance.

Consistent with Cohen and Cohen (1983), the significance of the correlation was examined using the 95% confidence interval (i.e., determining the bounds within which it

can be asserted with 95% confidence that the correlation falls, Cohen & Cohen, 1983, p. 110).

Correlations were first transformed to Fisher's z statistics (i.e., *r*-to-*z* transformation). For instance, the *r* of .17 corresponds to a *z*' of .1717 and the *r* of .30 corresponds to a *z*' of .3095. The standard error of *z*' was first computed, and is known to be approximately normal. The formula to compute the standard error is:

$$\sigma_{z'} = \frac{1}{\sqrt{N-3}}$$

For N = 162, for instance, the standard error of z' is 0.079.

From the general formula for a confidence interval, the formula for a confidence interval of *z'* is:

$$z' \pm z\sigma_{z'}$$

$$= z' \pm z\frac{1}{\sqrt{N-3}}$$

The *z* statistic associated with a 95% confidence interval is 1.96. The lower and upper bounds of the correlation coefficient are obtained through a *z-to-r* transformation of $z_{(lower)}$ *to* $r_{(lower)}$ to $z_{(upper)}$ *to* $r_{(upper)}$. If the confidence interval for the z statistic corresponding to a small-to-medium effect size included the obtained correlation the hypothesis was supported.

Additionally, to evaluate whether the correlations obtained between personality, motivational traits, and soft skills performance significantly differed from the correlations

between self-efficacy and soft skills performance, Hotelling's t-tests for correlated samples were computed:

$$t = \frac{(r_{12} - r_{13})\sqrt{(N-3)(1+r_{23})}}{\sqrt{2(1-r_{12}^{2} - r_{13}^{2} - r_{23}^{2} + 2r_{12}r_{13}r_{23}}}$$

The t-test is interpreted by a value of 1.96, which is required for significance at the .05 level between two correlations.

As can be seen in Table 15, correlations pertaining to the achievement oriented motivational traits and self-efficacy showed the strongest correlations with self-rated soft skills performance (e.g., $r_{\text{mastery-self-rated soft skills}} = .22$ [CI = .06 to .39]; $r_{\text{desire to learn- self-rated soft skills}} = .21$ [CI = .05 to .38]; $r_{\text{self-efficacy- self-rated soft skills}} = .36$ [CI = .21 to .54]). In contrast, correlations involving the anxiety-oriented motivational traits were zero. Correlations between personality and dimensions of soft skills performance were generally small- and medium-sized (e.g., $r_{\text{extroversion- self-rated soft skills}} = .19$ [CI = .03 to .36]; $r_{\text{conscientiousness- self-rated soft skills}} = .21$ [CI = .05 to .38]).

Correlations between personality traits and self-efficacy showed medium-sized correlations with supervisor-rated dimensions of soft skills performance (e.g., $r_{\text{extroversion-supervisor-rated soft skills}} = .35$ [CI = .18 to .55]; $r_{\text{agreeableness- supervisor-rated soft skills}} = .31$ [CI = .14 to .50]; $r_{\text{conscientiousness-p supervisor-rated soft skills}} = .36$ [CI = .19 to .56]; $r_{\text{self-efficacy- supervisor-rated soft skills}} = .44$ [CI = .29 to .66]. In terms of motivational traits, desire to learn was positively related to self-rated soft skills performance (e.g., $r_{\text{desire to learn supervisor-rated soft skills}} = .24$ [CI = .06 to .43]). In contrast, the correlation between mastery and soft skills performance was not significant. The correlation between anxiety motivational traits and soft skills performance was also not significant. Overall, the correlational findings suggest that

personality and motivational traits show a medium-sized correlation with dimensions of soft skills performance. As such, Hypothesis 3 is supported, suggesting that personality and achievement-oriented motivational traits are moderately related to dimensions of soft skills performance. In contrast, Hypothesis 4 was not supported because the relationship between anxiety-oriented motivational traits and soft skills performance was zero.

Self-efficacy was found to be the strongest predictor of both self- and supervisor-ratings of soft skills performance ($r_{\text{self-efficacy, self-rated soft skills performance correlation}} = .36$, $p < .05$; $r_{\text{self-efficacy, supervisor-rated soft skills performance correlation}} = .44$). Consistent with Hypothesis 5, the magnitude of the correlation between self-efficacy and soft skills performance was tested to determine whether the self-efficacy-soft skills performance correlation was greater than the personality/motivational traits-soft skills performance correlation. The correlation between self-efficacy and soft skills performance was significantly greater than the correlation between agreeableness-self-rated soft skills performance ($t = 2.13$, $p < .05$), but the correlation between and self-efficacy and self-rated soft skills performance was not significantly greater than the correlations between conscientiousness, extroversion, mastery, or desire to learn and self-rated soft skills performance. The correlation between self-efficacy and supervisor-rated soft skills performance was significantly greater than the correlation between desire to learn and soft skills performance ($t = 2.19$, $p < .05$) and mastery and soft skills performance ($t = 3.05$, $p < .05$). However, the correlation between self-efficacy and soft skills performance was not significantly greater than the correlations between extroversion, agreeableness, conscientiousness and supervisor-rated soft skills performance. As such, Hypothesis 5 was partially supported.

The relationship between objective soft skills performance was explored in terms of the relationship with self- and supervisor ratings. The correlation between objective soft skills performance was significant and positive for both self-ratings (r = .25 [CI = .09 to .42)] and supervisor-ratings (r = .20 [CI = .02 to .39]). As such, there was a significant relationship between self-reported objective soft skills performance (e.g., giving presentations, number of people in his/her network) and self- and supervisor-ratings of soft skills performance.

Table 15. Correlations between Personality and Motivational Predictors and Overall Self- and Supervisor-Rated Soft Skills Performance Dimensions

	Self-Rated Soft Skills Performance		Supervisor-Rated Soft Skills Performance	
	r	CI	*r*	CI
Extroversion	.19*	.03, .36	.35**	.18, .55
Agreeableness	.15	-.01, .32	.31**	.14, .50
Conscientiousness	.21*	.05, .38	.36**	.19, .56
Mastery	.22**	.06, .39	.16	-.02, .34
Desire to Learn	.21*	.05, .38	.24*	.06, .43
Worry	-.01	-.18, .16	-.02	-.20, .16
Emotionality	-.04	-.21, .13	-.18	-.36, .00
Competitive Excellence	.05	-.12, .22	.19*	.01, .38
Other-Referenced Goals	.07	-.10, .24	.01	-.17, .19
Self-Efficacy	.36**	.21, .54	.44**	.29, .66
Objective Soft Skills	.25**	.09, .42	.20*	.02, .39

Note. N = 143 for self-rated soft skills performance; N = 118 for supervisor-rated soft skills performance
* $p < .05$, ** $p < .01$
CI = confidence interval

Relations between Academic Performance Markers, Demographic Variables, and Soft Skills Performance

The relations between academic performance markers (i.e., GPA, SAT scores) and soft skills performance were computed to determine the influence of cognitive ability and academic variables. As shown in Table 16, correlations between academic performance indicators and soft skills performance were generally non-significant, with the exception of quantitative SAT score ($r_{\text{quantitative SAT score-self-rated soft skills performance}} = -.19$, $p < .05$).

Table 16. Correlations between Academic Indicators and Soft Skills Performance

	Self-Rated Soft Skills Performance		Supervisor-Rated Soft Skills Performance	
	r	CI	*r*	CI
GPA	.04	-.13, .31	-.07	-.25, .11
Quantitative SAT Score	-.19*	-.36, -.03	-.09	-.27, .09
Verbal SAT Score	-.07	-.24, -.10	-.18	-.36, .00
Overall SAT Score	-.17	-.34, .00	-.16	-.34, .02

Note. N = 143 for self-rated soft skills performance; N = 118 for supervisor-rated soft skills performance

* $p < .05$

CI = confidence interval

In addition, correlations between demographic variables (i.e., gender, race) were explored in terms of their relationships with soft skills performance. Gender (coded males = 0 and females = 1) was significantly related to supervisor-rated soft skills performance ($r = .18$, $p < .05$). As such, women showed slightly higher levels of supervisor-rated soft skills performance. Number of Co-op assignments and number of Co-op semesters were not significantly related to any of the soft skills performance scales. No significant differences were observed on any of the soft skills performance scales for class standing or race (coded as white vs. non-white).

Work type (working independently versus working with others) was significantly related to self-rated soft skills performance ($r = .22$, $p < .01$), such that working with others was significantly higher for soft skills. Work type, however, was not significantly correlated with supervisor-rated soft skills performance.

Hierarchical Regression Analyses

To account for shared variance among predictor measures, hierarchical regression analyses were performed on these data. The hierarchical regressions answer the question

of "incremental predictive validity" for personality and motivational measures, so that each additional predictor measure added to the equation is evaluated in terms of its unique valid variance in predicting the criterion. Hierarchical multiple correlations among personality, motivational trait, self-efficacy, objective soft skills performance, and academic performance markers as predictors and dimensions of soft skills as criteria are shown in Table 15. Personality variables and motivational traits were entered in Step 1, self-efficacy in Step 2, objective soft skills performance in Step 3, and academic performance markers in Step 4. This method of variable selection was used in order to determine the predictive validity of the main variables of interest in this study – personality and motivational traits and self-efficacy. Academic performance indicators and objective soft skills performance were exploratory in terms of how much incremental predictive validity they would provide.

As shown in Table 15, self-efficacy accounted for significant incremental predictive validity beyond personality and motivational traits for all dimensions of self-rated soft skills performance ($\Delta R^2 = .06$ in the prediction of self-rated soft skills performance, $\Delta R^2 = .09$ in the prediction of supervisor-rated soft skills performance). Objective soft skills performance and academic performance also contributed to the prediction of dimensions of self-rated soft skills performance. The amount of variance captured by the set of predictors was significant for both self- and supervisor-rated soft skills performance (23% in self ratings and 42% in supervisor ratings). In terms of the individual variables that contributed to the prediction of self-rated soft skills performance, self-efficacy and quantitative SAT score significantly predicted performance ($\beta = .28$, $\beta = -.21$, $p < .05$, respectively). For supervisor-rated soft skills

performance, competitiveness, other-referenced goals, and self-efficacy contribution to the prediction (β = .34, -.34, and .40, $p < .05$, respectively).

Table 17. Results of Hierarchical Regression Analyses: Personality/Motivational Traits and Self-Efficacy Entered in Steps 1 and 2

Self-Rated Soft Skills Performance			
Step and Variables	β	R^2	ΔR^2
Personality and Motivational Variables			
1. Extroversion	-.05		
Agreeableness	.11		
Conscientiousness	.04		
Mastery	.06		
Desire to Learn	.01		
Worry	.03		
Emotionality	-.06		
Competitiveness	-.04		
Other-Referenced Goals	.10	.10	.10
Proximal Motivation Variable			
2. Self-Efficacy	.28*	.16*	.06**
Objective Soft Skills Performance			
3. Objective Soft Skills Performance	.15	.19*	.02
Academic Performance Markers			
4. Verbal SAT Score	-.08		
Quantitative SAT Score	-.21*		
GPA	.06	.23*	.05
Supervisor-Rated Soft Skills Performance			
Step and Variables	β	R^2	ΔR^2
Personality and Motivational Variables			
1. Extroversion	.07		
Agreeableness	.05		
Conscientiousness	.11		
Mastery	-.03		
Desire to Learn	.15		
Worry	.25		
Emotionality	-.10		
Competitiveness	.34**		
Other-Referenced Goals	-.34**	.27**	.27**
Proximal Motivation Variable			
2. Self-Efficacy	.40**	.37**	.09**
Objective Soft Skills Performance			
3. Objective Soft Skills Performance	.04	.37**	.00
Academic Performance Markers			
4. Verbal SAT Score	-.19		
Quantitative SAT Score	-.14		
GPA	.17	.42**	.05

Note: *$p < .05$, ** $p < .01$

A second hierarchical regression analysis was run to determine whether self-efficacy accounted for incremental predictive validity beyond personality/motivation, ability, and objective soft skills performance. As such, personality and motivational variables were entered in Step 1, ability variables were entered in Step 2, objective soft skills performance was entered in Step 3, and self-efficacy was entered in Step 4. As shown in Table 18, self-efficacy accounted for significant incremental variance in self-ratings ($\Delta R^2 = .05$) and supervisor-ratings ($\Delta R^2 = .09$).

Table 18. Results of Hierarchical Regression Analyses: Personality/Motivational Traits and Academic Indicators Entered in Steps 1 and 2

Self-Rated Soft Skills Performance			
Step and Variables	β	R^2	ΔR^2
Personality and Motivational Variables			
1. Extroversion	-.05		
Agreeableness	.11		
Conscientiousness	.04		
Mastery	.06		
Desire to Learn	.01		
Worry	.03		
Emotionality	-.06		
Competitiveness	-.04		
Other-Referenced Goals	.10	.10	.10
Academic Performance Markers			
2 Verbal SAT Score	-.08		
Quantitative SAT Score	-.21		
GPA	.06	.15	.05
Objective Soft Skills Performance			
3. Objective Soft Skills Performance	.15	.18	.03
Proximal Motivation Variable			
4. Self-Efficacy	.28*	.23*	.05*
Supervisor-Rated Soft Skills Performance			
Step and Variables	β	R^2	ΔR^2
Personality and Motivational Variables			
1. Extroversion	.07		
Agreeableness	.05		
Conscientiousness	.11		
Mastery	-.03		
Desire to Learn	.15		
Worry	.25*		
Emotionality	-.10		
Competitiveness	.34**		
Other-Referenced Goals	-.34**	.27**	.27**
Academic Performance Markers			
2. Verbal SAT Score	-.19		
Quantitative SAT Score	-.14		
GPA	.17	.32**	.05
Objective Soft Skills Performance			
3. Objective Soft Skills Performance	.04	.33**	.01
Proximal Motivation Variable			
4. Self-Efficacy	.40**	.42**	.09**

Path Analyses

Finally, the model shown in Figure 2 was evaluated using path analysis in LISREL 8.5 (Joreskog & Sorbom, 1993) to test the effects of distal trait variables on soft skills performance through their influence on self-efficacy. Since the correlations between self- and supervisor-rated soft skills performance were small-to-medium (suggesting the soft skills performance measure is assessing something different across the two rating sources), separate models were tested for the two rating sources. The models were initially tested using the seven dimensions of soft skills performance. Since, however, the dimensions were very highly correlated, the fit of the models was poor. Composite soft skills performance variables were created (separately for self- and supervisor ratings), and these composites were used to test the hypothesized models. Figure 8 shows the results of the path analysis of the hypothesized model. The data fit the hypothesized model well for self-rated soft skills performance ($\chi^2 = 3.10$, RMSEA = 0.0, GFI = 1.00, CFI = 1.00) and marginally well for supervisor-rated soft skills performance ($\chi^2 = 27.21$, RMSEA = .12, GFI = .97, CFI = .97). Self-efficacy was found to significantly predict overall soft skills performance ($\beta = .36$, $p < .05$ for self ratings; $\beta = .43$, $p < .05$ for supervisor ratings). Extroversion and conscientiousness were significantly related to self-efficacy ($\beta = .30$, $\beta = .19$, $p < .05$). Surprisingly, extroversion and conscientiousness were the only personality or motivational trait variables to be significantly related to self-efficacy in the model.

The alternative model shown in Figure 3 (where personality and motivational traits exert direct influences on soft skills performance in addition to indirect effects) was also tested separately for self- and supervisor-ratings. As shown in Figure 9, the direct

and indirect effects of extroversion, conscientiousness, desire to learn, and mastery on self-rated soft skills performance in addition to the indirect effects of agreeableness, worry, emotionality, competitive excellence, and other-referenced goals were tested. The direct effects were tested because they were most substantially related to overall self-rated soft skills performance. As can be seen, the direct effects of extroversion, conscientiousness, mastery, and desire to learn were not significant. This alternative model fit the data well, however ($\chi^2 = 9.22$, RMSEA = .06, CFI = .99, GFI = .99).

Figure 10 shows the alternative models using supervisor-rated soft skills performance as the criteria. The direct and indirect effects of extroversion, agreeableness, conscientiousness, desire to learn, and competitive excellence on soft skills performance in addition to the indirect effects of mastery, worry, emotionality, and other-referenced goals were tested. The paths for the direct effects were tested because they were significantly related to overall supervisor-rated soft skills performance. As shown in Figure 9, the direct effects for extroversion, agreeableness, conscientiousness, desire to learn, and competitive excellence on soft skills performance were not significant. The data did not fit the model well ($\chi^2 = 42.46$, RMSEA = .17, CFI = .93, GFI = .96).

In conclusion, the fully mediated model shown in Figure 8 is retained because of its parsimony and the fit of the data to the models. The effects of distal personality and motivational traits influence soft skills performance through their effect on self-efficacy.

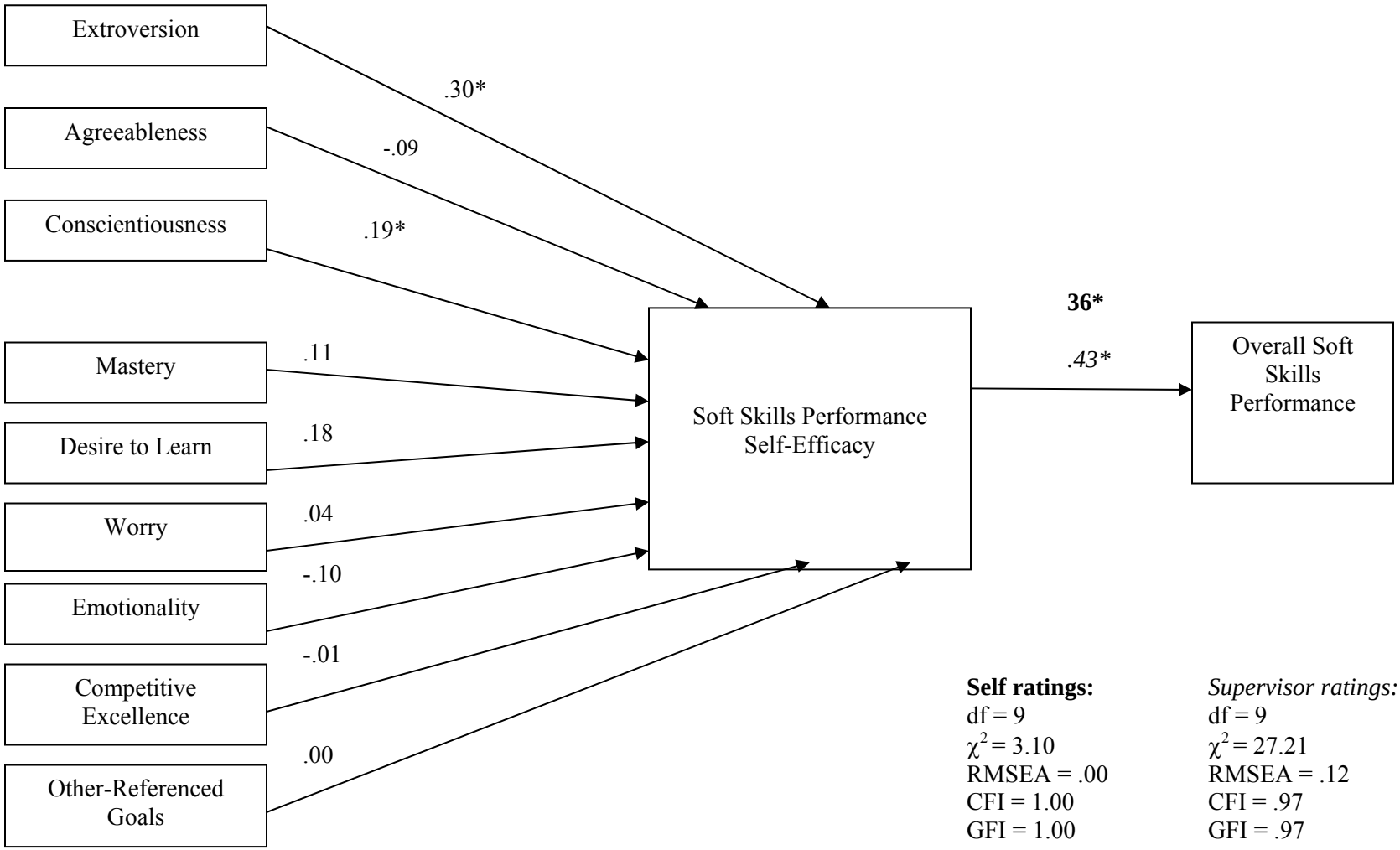

Figure 8. Standardized Path Coefficients for the Mediated Model of Relationships Among Personality and Motivational Traits, Self-Efficacy, and Self- and Supervisor-Rated Soft Skills Performance

Note: Path coefficient for self ratings shown in bold; path coefficient for supervisor ratings shown in italics

* $p < .05$.

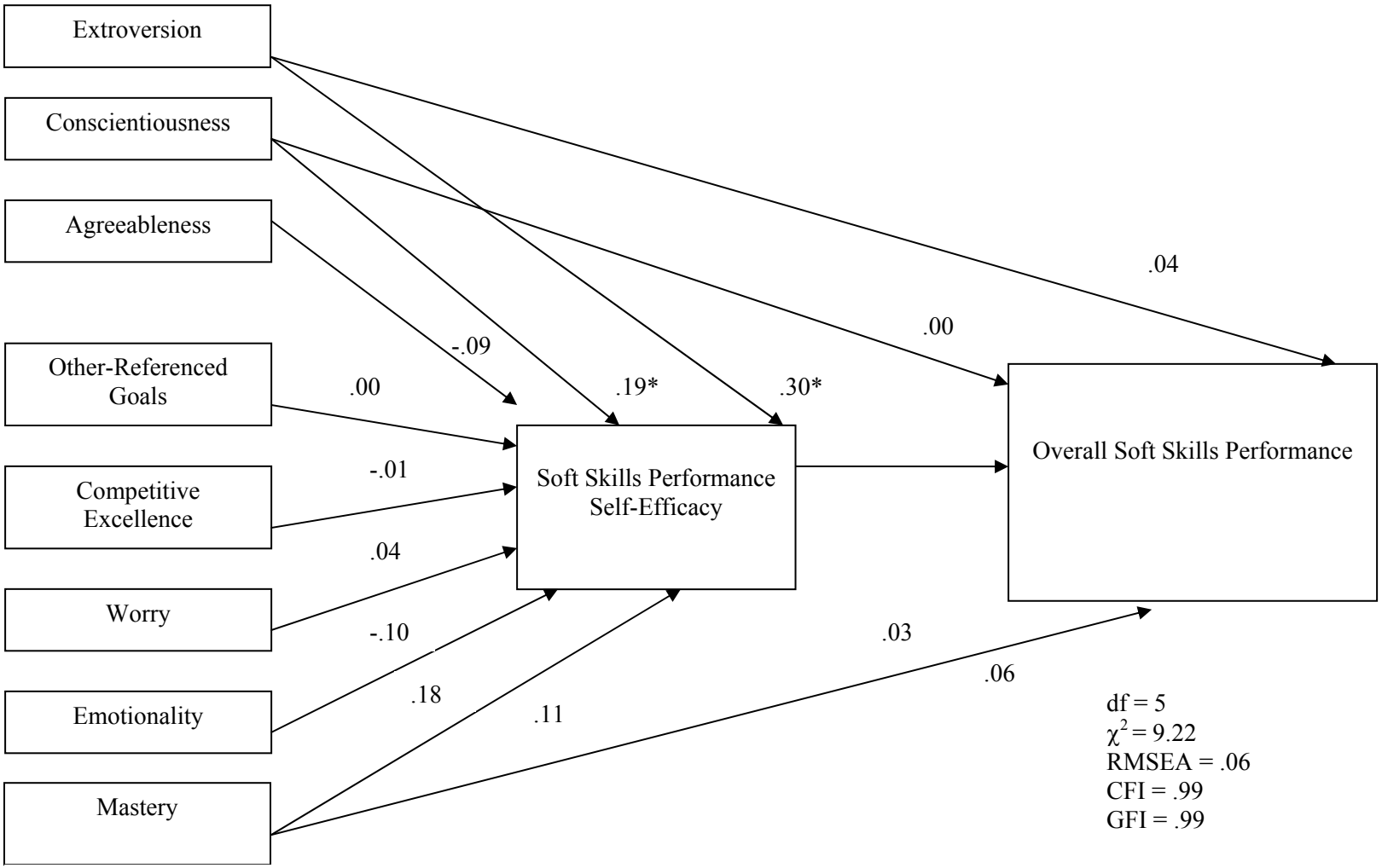

Figure 9. Standardized Path Coefficients for the Alternative, Partially Mediated Model of Relationships among Personality and Motivational Traits, Self-Efficacy, and Self-Rated Soft Skills Performance.
Note: * $p < .05$.

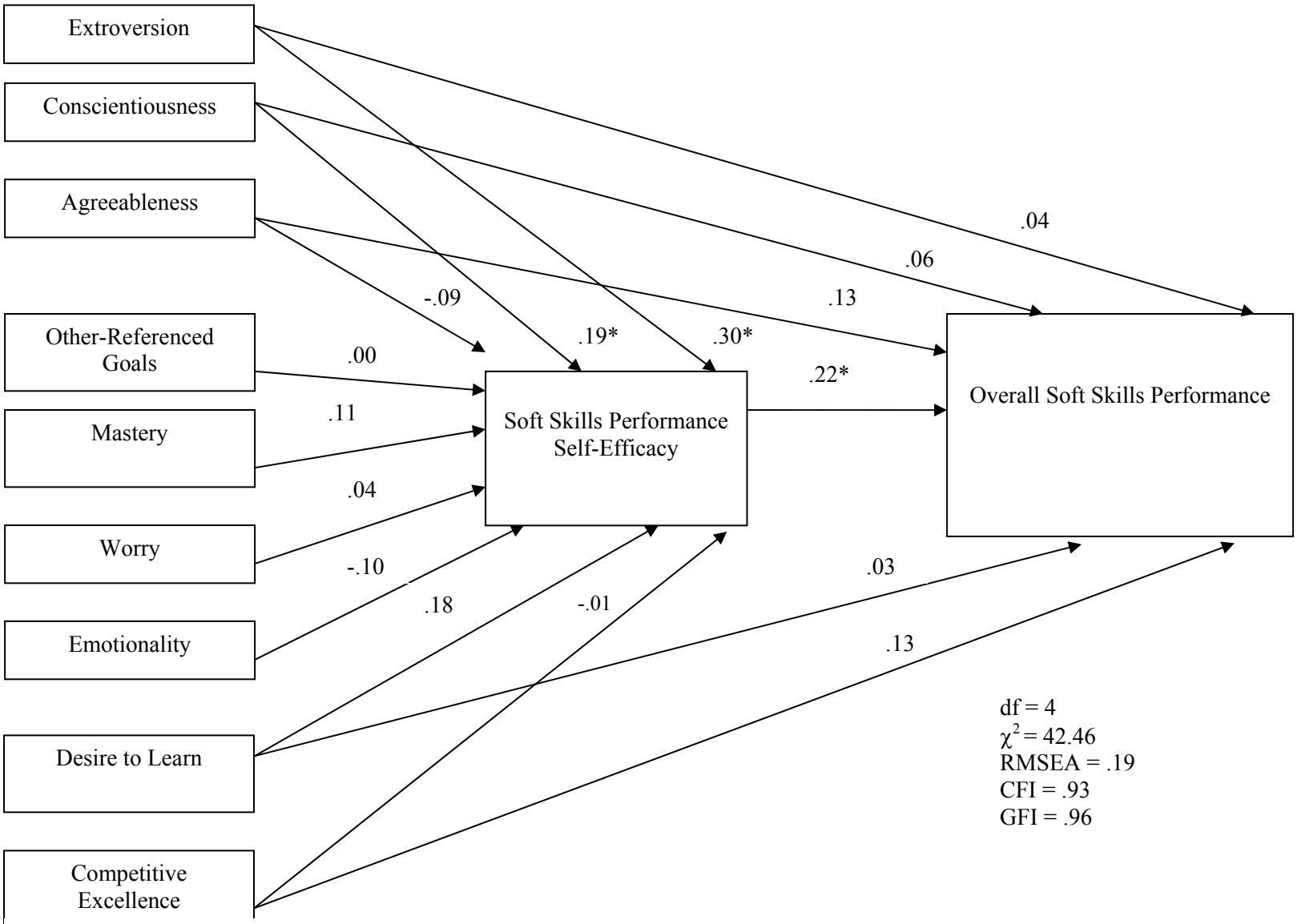

Figure 10. Standardized Path Coefficients for the Alternative, Partially Mediated Model of Relationships among Personality and Motivational Traits, Self-Efficacy, and Supervisor-Rated Soft Skills Performance.
Note: * $p < .05$.

Discussion

There were three goals for this study: (1) to demonstrate that non-ability predictors were significantly and substantially related to dimensions of soft skills performance, (2) to show convergent relations between the new measures of soft skills performance and an extant measure of teamwork KSAs, and (3) to investigate the relationship between self- and supervisor-rated soft skills performance. This study extends previous research on the prediction of performance in two ways. First, the predictive validity of non-ability variables was extended to a new domain – soft skills performance. Personality, motivational traits, and self-efficacy were found to significantly relate to soft skills performance found in Study 2 – communication/persuasion skills, leadership/organization skills, performance management skills, self-management skills, interpersonal skills, political/cultural skills, and counterproductive work skills. In addition, a motivational approach to understanding the prediction of soft skills performance, whereby distal traits exert an influence on proximal, self-regulatory processes which in turn influence soft skills performance was supported.

In terms of the first goal, my predictions about the relations among personality, motivation, and soft skills performance were partially supported. That is, personality and achievement-oriented motivational traits were generally positively and significantly related to soft skills performance. Surprisingly, there was no relationship between anxiety-oriented traits and soft skills performance. Self-efficacy for soft skills performance was a significant correlate of most soft skills performance scales and accounted for significant incremental predictive validity after personality and

motivational traits for both self- and supervisor-ratings of soft skills performance. The finding that personality, motivational traits, and self-efficacy accounted for 16% of the variance in self-rated soft skills performance and 37% of the variance in supervisor-rated soft skills performance suggests that a moderate to large amount of variance in performance could be accounted for by non-ability variables. Objective soft skills performance and academic markers (i.e., SAT scores, GPA) only accounted for an additional 5% in self-ratings and 7% in supervisor-ratings, respectively.

Relationships between Teamwork KSAs and Soft Skills Performance

The teamwork KSA scale showed a positive correlation with supervisor-rated soft skills performance, but was not related to self-rated soft skills performance. Higher levels of teamwork KSAs are related to higher levels of supervisor-rated soft skills performance. This suggests that supervisors may consider how knowledgeable/skilled employees are when making ratings of soft skills performance.

Dimensions of Soft Skills Performance

Results indicated that self- and supervisor-rated soft skills performance scales were correlated moderately (i.e., correlations ranged from .07 to .21). Overall self- and supervisor-rated soft skills performance were unrelated. That is, dimensions of self-rated and supervisor-rated soft skills performance showed a pattern of small-to-medium positive intercorrelations. The communication and political/cultural scales showed the largest convergence between and with other dimensions (i.e., $r_{\text{self-rated communication skills, supervisor-rated communication skills}} = .20$, $r_{\text{self-rated political/cultural skills, supervisor-rated communication skills}} = 21$, p

< .05). Different patterns of results observed for self versus supervisor ratings suggests that different constructs are being assessed. Perhaps individuals rating their own soft skills performance are using idiographic expectations while supervisors use more established standards and expectations. That is, individuals may interpret/rate their performance according to their own set of expectations about how well they should be performing while supervisors who oversee the work of multiple people have a comparison group in which to evaluate an employee's performance.

Interestingly, the dimensions of soft skills performance in this study were highly correlated, suggesting the presence of a general factor of soft skills performance. While this finding is consistent with work done on job performance ratings by Viswesveran et al. (in press), it contradicts what was found in Studies 1 and 2 in terms of the dimensionality of soft skills performance. It may be that the measures did not adequately measure the behaviors and dimensions identified in Studies 1 and 2 in terms of capturing the richness of the soft skills domain. It may also be that rater biases (e.g., halo, leniency, recency, central tendency) and response sets were observed in the performance ratings that contributed to the positive manifold observed between performance dimensions.

The idea of response sets in the data was investigated further by analyzing the data associated with the first half of the soft skills performance measures. This was done to evaluate whether the first half of the soft skills performance measures showed a different pattern of results than the full measures in terms of the correlations between the dimensions. Results indicated that the dimensions were also highly correlated and were very similar to the effect sizes presented in Table 12.

The strong correlations between performance dimensions is not surprising in light of the recent large-scale meta-analysis conducted by Viswesveran (in press) on 90 years of empirical studies investigating correlations between ratings of job performance dimensions. Their results showed that one general factor exists in performance ratings, and it accounted for 55.8% of the variance, and 75.8% of the variance in ratings after partialling out the effects of halo error (i.e., unrealistically large within-rater correlations between different performance dimensions). This may occur because raters form an overall impression of a ratee prior to making performance ratings. Viswesveran et al. (in press) concluded that the likelihood of achieving discriminant validity in performance ratings depends on the size of construct intercorrelations; if the intercorrelations are high, demonstrating discriminant validity is "impossible."

Viswesveran et al. (in press) suggested that basis for a general factor in performance ratings stems from the idea that because the same abilities and traits (e.g., general cognitive ability, conscientiousness) likely contribute to performance on most or all dimensions of job performance, performance dimensions would be expected to be positively correlated. This effect may be due to true positive manifold among job performance dimensions (e.g., Feldman, 1981; Motowidlo et al., 1997). Hulin (1982) argued that because most human abilities are positively correlated, employees who have the ability to perform well on some job tasks are more likely to have the ability to perform well on other job tasks. Similarly, Thorndike (1940) argued for the notion that "all good traits go together," suggesting that the correlations between desirable traits (e.g., intelligence, virtue, health, poise, sanity) are always positive. Ackerman (1997) further discussed this notion in terms of construct overlap between intelligence,

personality, interests, and self-concept, and presented evidence for trait complexes. As such, my results indicating the presence of a general factor in performance ratings may be explained by the idea that performance on one domain of soft skills is related to other areas because individual differences in traits are antecedents to all areas of job performance.

Predictive Validity of Non-Ability Traits for Soft Skills Performance

In terms of the predictive validity of personality and motivational traits for soft skills performance, personality traits were more predictive of supervisor-ratings of soft skills performance than motivational traits. That is, the difference between $r_{\text{conscientiousness-supervisor rated soft skills performance}}$ and $r_{\text{mastery-supervisor rated soft skills performance}}$ was significant, $t = 2.40$, $p < .05$. This finding suggests individuals with tendencies to be sociable, hard-working, and friendly were rated slightly higher on the soft skills performance measure by their supervisors. It may also be that behaviors and tendencies that are representative of extroversion, agreeableness, and conscientiousness are more noticeable to others than are motivational traits. Supervisors may not be aware of employees' desire to learn and how much they are motivated to master tasks, but may be more aware of employees' conscientious work habits and how they interact with others. That is, personality variables may describe individuals' outwardly-focused self-representations, while motivational traits may indicate internal psychological processes.

Potential Limitations

Several limitations of the present research warrant note. First, the sample used in this study represented a specific segment of the workforce; namely young adults in

transition from school to work. The sample was drawn from a Co-op program that employs mostly people with technical backgrounds (science and engineering). As such, job performance for this sample may be more heavily weighted to the technical aspect of the jobs rather than inter- and intrapersonal aspects. The participants may have not had adequate opportunity to perform the behaviors representative of soft skills performance in their relatively short job tenures. Similarly, supervisors may have not had adequate opportunity to consider and evaluate the behaviors representative of soft skills performance and may not always work closely with the participants to observe these behaviors. Future research is needed to evaluate the generalizability of our findings with these other segments of the workforce.

CHAPTER 7

GENERAL DISCUSSION

The goals of this research were to develop a taxonomy of soft skills performance and investigate the relations between non-ability individual differences and soft skills performance to address two questions: (1) What are the clusters of soft skills performance? and (2) What individual differences variables relate to the dimensions of soft skills performance? Dimensions of soft skills performance were derived and their nature was explored, in three studies. Study 1 involved the generation of behavior exemplars and critical incidents by subject matter experts, Study 2 involved reduction of the list of behavior descriptors to a more manageable size, and Study 3 involved exploration of the predictors that relate to a new measure of soft skills performance. Based on the extant literature, four dimensions of soft skills performance were hypothesized: leadership/people/ relationship skills, communication skills, management and organization skills, and cognitive skills and knowledge. Individuals' traits and dispositions were hypothesized to influence the extent to which individuals are effective at soft skills performance.

Results obtained in Study 2 indicated that seven clusters underlie soft skills performance: communication/persuasion, leadership/organization, performance management, self-management, interpersonal, political/cultural, and counterproductive work skills. I found that non-ability factors play a substantial role in soft skills performance; individual differences in personality, motivational traits, and self-efficacy were related to self- and supervisor-ratings of soft skills performance. The results support

a motivational approach to understanding the prediction of soft skills performance, whereby distal traits exert an influence on proximal, self-regulatory processes which in turn influence soft skills performance. That is, personality and motivational predictors were shown to have significant, small-to-medium sized correlations with self-efficacy, which in turn showed medium-to-large correlations with dimensions of soft skills performance. Below I revisit the findings of the current studies, describe some of the limitations, and note avenues for future research to address these limitations and expand on the current findings.

Dimensionality of Soft Skills Performance

This research has provided conflicting evidence about the dimensionality of soft skills performance. Findings related to the taxonomic structure of soft skills indicated that soft skills performance is not unidimensional, but is instead comprised of several clusters. Seven interpretable clusters were found in Study 2, but more or fewer may exist. It is possible that some or all of these dimensions may be divisible into more than seven lower-order facets. In contrast to previous work (e.g., managerial performance, Boyatzis, 1982), emphasis was placed on identifying the complete domain of soft skills performance rather than specific aspects of the domain. The dimensions that were found beyond those hypothesized are potentially useful for assessment of soft skills performance among non-managerial workers. Regardless, the relatively large number of dimensions found in this research indicates that much prior research in this domain has missed important areas of the soft skills performance construct space.

After careful development of the taxonomy which suggested seven clusters, findings from Study 3 suggested one general factor of soft skills performance. This finding may be the result of two different, but related factors. First, the high interrelatedness of the soft skills performance scales is reflective of the positive manifold associated with job performance measures (Viswesveran et al., in press). Second, there may be substantial overlap among the scales exemplified by the similarities of interacting with others, communicating, and leading others.

These results illustrate the challenge between two approaches. As evidenced by the Viswesveran meta-analysis, a factor-analytic approach to understanding performance ratings will almost always result in a general factor. A different approach is to use theory to construct performance dimensions (Schmidt & Kaplan, 1991). Similar to the notion of differential predictive validity from factors (e.g., extroversion) versus facets (e.g., sociability) in personality research, there are theoretical and practical implications for using the dimensions. For example, Stewart (1999) examined differential predictive validity for conscientiousness and its subtraits (order and achievement) at different levels of organizational tenure for a sample of salespeople. He found that conscientiousness showed modest prediction (r = .16) for job performance of all employees, but that order (r = .27) predicted newcomer performance while achievement (r = .24) predicted veteran performance. Similar to the approach used by Stewart (1999), future research on the dimensionality of soft skills can evaluate the relative predictive validity of dimensions versus a general factor.

Criterion-Related Validity Findings

Results from Study 3 sketch the nomological network of relations among non-ability predictors and soft skills performance. Prior work has documented the predictive validity of cognitive ability measures for technical job performance (e.g., Schmidt & Hunter, 1998), some work has examined the role of personality traits for predicting citizenship behavior (e.g., Witt et al., 2002), but none has looked at these variables for soft skills performance. Results of Study 3 extend understanding by showing the influence of personality and motivation on soft skills performance through self-efficacy. This is consistent with research and theory suggesting that distal traits affect outcomes through their influence on proximal motivational processes (e.g., Kanfer, 1990; Chen et al., 2000). The particular pattern of findings, namely the relatively unimportant role of avoidance variables and comparatively important role of approach variables (both personality and motivation) further suggests that soft skills performance is influenced by the achievement facets of the individual. The relatively small role of ability markers and academic performance is consistent with work on organizational citizenship/contextual performance and suggests that efficacy in the social domain may relate to soft skills performance. More research is needed to understand why this pattern of correlations occurred.

Personality Predictors

As anticipated, conscientiousness, extroversion, and agreeableness showed medium-sized relationships with soft skills performance, indicating that individuals with

tendencies to persevere, socialize, and act friendly reported higher levels of soft skills performance. Compared to previous meta-analytic research investigating personality-performance relations (e.g., Barrick & Mount, 1991; Tett, Jackson, & Rothstein, 1991), the magnitudes of correlates from the present study are quite large. This may represent a substantive difference in the way traditional job performance criteria versus soft skills performance criteria are measured. In personality-performance research, substantial attention has been paid to the 'criterion problem' (e.g., Austin & Villanova, 1992), in particular the concern that performance often represents a multidimensional outcome. In contrast, soft skills performance is measured more narrowly (i.e. communication, self-management) than overall performance ratings, and so may provide more direct measures of the construct. As such, correlations that were obtained for predictor-soft skills performance relations may be explained in part by minimal criterion contamination in soft search performance measures. That is, rather than asking questions pertaining to technical, contextual, and interpersonal performance, employees and supervisors in the current study were asked to rate a narrow range of performance. Overall, these results suggest the importance of personality and motivational variables influencing soft skills performance.

Motivational Predictors

Achievement-oriented motivational traits (e.g., desire to learn, mastery) were related to soft skills performance indicating that individuals who report higher levels of need for achievement and personal goal setting, respectively, reported higher levels of soft skills performance. In contrast, anxiety-oriented motivational traits were unrelated to

soft skills performance. The broader motivational literature (e.g., Kanfer, 1990) suggests that proximal self-evaluative variables should be more strongly related to outcomes than distal, trans-situational personality variables, and results showed the self-efficacy exerted a stronger influence on soft skills performance than selected distal traits (i.e., agreeableness, mastery, desire to learn). The finding that self-efficacy was related to soft skills performance is consistent with social cognitive views that self-evaluations influence action (Bandura, 1986). That is, individuals who evaluated themselves as competent with respect to specific soft skills behaviors report higher levels of soft skills performance. Higher levels of self-efficacy may lead to increased persistence in performing specific job tasks (e.g., giving presentations, adjusting your message to the audience). This finding reflects the larger body of research that self-evaluative predictors exert important influences in goal-setting and goal commitment (c.f., Kanfer, 1990).

Limitations

Several limitations associated with these studies warrant attention. First, the sample used in Study 1 to generate behavior exemplars and critical incidents may be limited. The SMEs interviewed may have indicated behaviors that are more representative of managerial and higher-level jobs than those held by the participants in Study 3. Additional data on behavioral exemplars and critical incidents could be collected specifically from SMEs familiar with technical and entry-level jobs. In addition, results from Study 3 call for further investigation of the measurement of soft skills performance. The intercorrelations between clusters of soft skills performance were very high, suggesting the presence of fewer than seven distinct dimensions. Also, results from Study

3 may have somewhat limited generalizability in terms of the broader population of workers. The sample was drawn from a highly selective university and a highly selective co-operative education program. Most participants were also working in more technical positions that may have not allowed for the demonstration of behaviors related to soft skills performance.

Finally, there are other variables that were not included in the current study that could help explain additional variance in soft skills performance. While academic marker variables were included in this study (and were found to be unrelated or negatively related to soft skills performance), cognitive ability as an individual differences variable would likely provide a more complete picture of the psychological influences on soft skills performance. Restriction of range was present in this study on the cognitive ability variable (SAT). Individuals must possess the requisite knowledge, skills, and abilities (KSAs) to effectively perform their jobs. Future research should investigate cognitive ability with a less restricted sample as a predictor of soft skills performance.

Future Directions

Research is needed to follow-up on the findings from the current set of studies. The soft skills performance measures should be cross-validated on other samples of employees to determine the underlying dimensionality of the measures with different samples. Item analyses should also be conducted following additional validation work to taper down the number of items in the measure. A future study could also look to include

measures of technical, contextual, and soft skills performance to examine the construct overlap between these aspects of performance.

In addition, other predictor variables could be explored to determine the predictive validity of person variables for soft skills performance. For example, given the medium-to-large effect size obtained for the predictive validity of self-efficacy for soft skills performance, additional self-regulatory variables such as motivational skills could be explored. Theory on motivational skills (Kanfer & Heggestad, 1997) conceptualizes *emotion control* as the ability to suppress competing emotions so as to not deplete attentional resources and *motivation control* as the ability to stay focused on a task. Drawing on research on the role of motivational skills in skill acquisition (Ackerman, Kanfer, & Goff, 1995) where emotion control is important in early stages of practice and motivation control is important in later stages of practice, similar patterns may be found in predicting soft skills performance over time. That is, newcomers may need to use emotion control when learning roles and responsibilities to suppress negative competing emotions and thoughts of failure to preserve attentional resources aimed at goal-oriented behaviors. After employees have been socialized, they may need to use motivation control to persevere to stay motivated to meet and exceed performance standards. Extending the domain of self-regulatory variables to include motivational skills should help better elucidate how proximal variables relate to soft skills performance.

Conclusions

This study examined the personality and motivational influences on soft skills performance. The findings provided evidence of significant non-ability predictors of a

variety of dimensions of soft skills performance. Specifically, personality, motivational traits, and self-efficacy were significantly related to soft skills performance. In support of the hypothesized model whereby distal traits exert a role on performance through their influence on self-efficacy, it was found that (1) personality and motivational antecedents were significantly and positively related to self-efficacy and (2) self-efficacy was significantly and positively related to dimensions of soft skills performance.

Future research is suggested that focuses on further delineating the item characteristics and proximal processes influencing soft skills performance. Specifically, additional studies are needed to more fully explore the items comprising the soft skills performance measures. Longitudinal investigations should investigate the differential influence of personality, motivational traits, and self-efficacy across time. Investigation of motivational skills, namely emotion and motivation control, should be further studied to investigate the self-regulatory skills that influence individual differences in soft skills performance.

In conclusion, this study contributes to the literature by delineating the domain of soft skills performance and by providing evidence on the predictors of soft skills performance. Specifically, this study represents the first attempt at measuring soft skills performance and investigating the relationships between non-ability predictors and soft skills performance. Results from the current studies support the notion that job performance is influenced by psychological variables, but the overall picture is still fuzzy. Although much research remains to be done, the results of this study represent an advance in our understanding of the personality-motivational antecedent influences on soft skills performance.

APPENDIX A

STUDY 1 INTERVIEW PROTOCOL

SOFT SKILLS PERFORMANCE INTERVIEW FORM

Subject Matter Expert _____ Job Title _____

Date___ Time _____ Organization _____

Tenure in Current Position _____ Tenure at Organization _____

Tenure in Profession _____

Introduction

"This is a study of the behaviors and dimensions that fall under the heading of "soft skills." The goal of the study is to create and validate a measure of soft skills performance. I believe you are especially well qualified to tell me about different types of soft skills. I would like to ask you some questions about how you define soft skills performance, different behaviors you would consider to be examples of soft skills, and critical incidents of people who have been successful and unsuccessful at performing soft skills.

This process will take no more than 45 minutes to one hour. For your participation, I'll be creating a benchmarking summary once I've collected information from employees at multiple organizations. The summary will discuss the uses and recommendations of this information for training, selection, and career development purposes. I'll be taking notes today, but everything you say is completely confidential. That is, your individual responses will not be seen by anyone at <insert organization name>. Any reports provided to <insert organization name> would describe group summary information.

Do you have any questions?

To start with, I would like to get a sense of how you define soft skills. In a few words, could you give me your definition of soft skills performance?"

_____
_____
_____
_____
_____
_____
_____
_____

Part I: Generation of Soft Skills Behavior Descriptors

"Please tell me all of the behaviors you can think of which you believe describe individuals who are successful or unsuccessful at soft skills performance. I'd like you to list as many behaviors as you can think of. To help you think of soft skills behaviors, you may want to think of people you have known who you think are successful in performing soft skills. When doing this, please do not use personality characteristics like "friendly" or "helpful." Try instead to focus on actual work behaviors. For example, rather than saying that an employee who is successful at performing soft skills is a team player, say instead that he/she provides feedback about ideas, collaborates with team members, or motivates others to reach goals."

[Response if participants need more information: Think of a co-worker, subordinate, or manager who excels in non-technical skills that make them successful in their job; things other than computer skills, strategic planning, and specialized business knowledge. What are some of those behaviors?]

"Next, think about the soft skills needed to effectively perform each of the following jobs: sales clerk, sales representative, mid-manager, and small business owner. Describe the behaviors needed to effectively perform each of these jobs." (*See next page for description of jobs).*

Sales clerk: "sells merchandise, such as furniture, motor vehicles, appliances, or apparel in a retail establishment"	**Sales representative**: "sells goods for wholesalers or manufacturers to businesses or groups of individuals; work requires substantial knowledge of items sold"	**Mid-manager:** "manages daily operations and plans the use of materials and human resources"	**Small business owner:** "determines and formulates policies and provides the overall direction of the company; plans, directs, or coordinates operational activities with the help of subordinates"
Examples: *"persuades customers to purchase more than they anticipated; works well with co-workers to rely on them during atypical situations"*	***Examples:*** *"stays in tune with customers' expectations about value and service; listens to customers' needs"*	***Examples:*** *"motivates and rewards employees; responds constructively in conflict situations"*	***Example:*** *"identifies talented employees; shows foresight and encourages new ideas"*

[Interviewer response if participants answer with non-behavioral examples: *"Remember to focus on work behaviors or actions rather than characteristics of people."]*

Part II: Rating Relevance of Soft Skills Behavior Descriptors

"Next, I would like your opinion on how representative you think some behaviors are for soft skills performance. Tell me how representative you believe that effectively performing each of the following behaviors is necessary for good soft skills performance. Use the following scale: extremely unrepresentative, moderately unrepresentative, slightly unrepresentative, slightly representative, moderately representative, strongly representative."

*[**Interviewer note**: Response scale will be placed on an index card for participant's reference during this section.]*

	extremely unrepresentative	moderately unrepresentative	slightly unrepresentative	slightly representative	moderately representative	extremely representative
Gives feedback						
Adapts to and leads change						
Promotes teamwork						
Is internally motivated						
Resolves conflict						
Accepts responsibility						
Motivates others						
Accepts feedback						
Demonstrates a desire to lead						
Speaks to a group						
Makes business decisions						
Demonstrates empathy and understanding						
Follows-up with others						
Asks questions to promote understanding						
Adjusts process, procedure, or system to meet goals						
Thinks creatively						
Is a "team player"						

	extremely unrepresentative	moderately unrepresentative	slightly unrepresentative	slightly representative	moderately representative	extremely representative
Shows judgment and critical thinking						
Plans and organizes his/her time and activities						
Solves problems						
Inspires trust through honesty, confidence, and competence						
Delegates work						
Answers questions when speaking to a group						
Listens to the views of others						
Writes in business style						
Plans work activities for others						
Is courteous						
Shows self-control						
Is sensitive to organizational and national cultures						
Serves customers						
Manages meetings						
Identifies talent						
Shows mutual respect						
Listens to new ideas						
Negotiates						
Shows vision						
Manages change						
Is a good coach						
Works in a team						
Conforms to prevailing norms						
Manages and plans projects						
Takes supervision						
Collaborates with others						

Part III: Development of Critical Incidents

Critical Incidents – Successful Performance:
"Please think of a situation where an employee was particularly successful in performing a soft skill. Success is defined as having a substantial positive effect on the organization, whether with a customer, co-worker, subordinate, or supervisor. What have they done that made you think of them in that way? Specifically:

- What led up to the situation?
    - Where was it located?
    - Who was involved?
    - What were the conditions surrounding the situation?
- Exactly what did the person do that was especially effective?
- What was the outcome or result of this action?
- Why was this action effective?"

**[*Interviewer prompt: "In other words,* *I wonder if you could think of the last time that someone did something that had a positive effect on your group's performance or resulted in goal attainment. What were the circumstances leading up to this incident?"]*

[Interviewer prompt: "For example, *think of the last time you saw one of your co-workers, subordinates, or managers do something that was very helpful in meeting a deadline. How did her/his action result in an increase in productivity/proficiency/performance?"]*

Critical Incident 1:

[Interviewer note: ***"What are other instances of successful soft skills performance?"]***

Critical Incident 2:

[Interviewer note: ***"What are other instances of successful soft skills performance?"]***

Critical Incident 3:

Critical Incidents – Unsuccessful Performance:
"Please think of a situation where an employee was particularly unsuccessful in performing a soft skill. Lack of success is defined as having a substantial negative effect on the organization, whether with a customer, co-worker, subordinate, or supervisor. What have they done that made you think of them in that way? Specifically:

- What led up to the situation?
    - Where was it located?
    - Who was involved?
    - What were the conditions surrounding the situation?
- Exactly what did the person do that was especially ineffective?
- What was the outcome or result of this action?
- Why was this action ineffective?
- What more effective action might have been expected?"

***[Interviewer prompt: "In other words,** I wonder if you could think of the last time that someone did something that had a negative effect on your group's performance or resulted in missing a goal. What were the circumstances leading up to this incident?"]*

***[Interviewer prompt : "For example,** think of the last time you saw one of your direct reports do something that detracted from your group's ability to meet a deadline. How did her/his action result in a decrease in productivity/proficiency/performance?"]*

Critical Incident 4:

[Interviewer note: ***"What are other instances of unsuccessful soft skills performance?"]***

Critical Incident 5:

Critical Incident 6:

[Interviewer note: ***"What are other instances of unsuccessful soft skills performance?"]***

Part IV: Other Questions

Criticality of errors: “What would be considered a soft skills performance error?”

Outcomes: “What are the outcomes/outputs of soft skills performance?”

Training: “How do people typically learn soft skills?”

Closing

"Thank you very much for providing insight into the nature of soft skills performance. Your answers will be compiled along with those from other subject matter experts. The result of this phase of the study will be a list of soft skills and examples/incidents of successful and unsuccessful soft skills performance. The next phase of the study will involve refining the master list of soft skills into dimensions. The final phase of the study will involve development of the measure and validation against a battery of personality, attitudes, and traits. Feel free to contact me if you have anything else to add, or if you have any questions about this research."

APPENDIX B

SOFT SKILLS PERFORMANCE MEASURES

Soft Skills Performance Measure – Self-Rated Version

The following statements relate to your work skills and behavior in your current Co-op position. Take a moment to think about your work and respond to the questions as frankly as possible. There are no right or wrong answers.

We are also asking that your immediate supervisor rate your current performance. Please provide us with your immediate supervisor's name below, so that the same inventory may be sent to him/her. YOUR SUPERVISOR WILL NOT SEE YOUR RESPONSES, since this information will be sent directly to the researchers. Similarly, you will not see your supervisor's ratings.

Your supervisor's name (fill in the blank): _____
Your supervisor's company name: _____
Your supervisor's email address: _____
Your supervisor's mailing address: _____

Directions: Please provide ratings of your performance along 2 dimensions: (1) performance toward expectations/standards and (2) performance relative to other people using the scales provided to the right. Rate your performance on these dimensions for the behaviors listed below.	**PERFORMANCE STANDARDS:** **How well does your performance on each of the following behaviors meet the performance expectations that were laid out by your supervisor and the organization?** n/a = no basis for judgment 1 = does not meet standard at all 2 = partially meets standard 3 = meets standard 4 = exceeds standard 5 = greatly exceeds standard	**COMPARATIVE PERFORMANCE:** **Compared to other working students**, how well do you perform the following behaviors? n/a = no basis for judgment 1 = much worse than others 2 = slightly worse than others 3 = same as others 4 = slightly better than others 5 = much better than others
I accept feedback from my supervisor and coworkers.		
When things go wrong, I find it hard to admit my mistakes.		
I coach and train others in their work.		
If something or someone makes me feel "rattled" I control my emotions.		
I cooperate with others to get the job done.		
I adjust my message depending on the audience in order to convey my point.		

	n/a = no basis for judgment 1 = does not meet standard at all 2 = partially meets standard 3 = meets standard 4 = exceeds standard 5 = greatly exceeds standard	n/a = no basis for judgment 1 = much worse than others 2 = slightly worse than others 3 = same as others 4 = slightly better than others 5 = much better than others
If someone has a problem with something I have done, I handle their objections appropriately.		
I demonstrate empathy when dealing with others.		
I model the behaviors I would like to see others perform.		
When responding to others, I modify my reactions to fit the organizational culture.		
When starting a project or task, I start by defining the objectives.		
If something needs to be addressed, I confront an issue head-on to defuse the situation.		
I delegate work to others as appropriate.		
I deliver effective presentations.		
I tend to make inappropriate and "off-color" comments.		
I act aggressively or assertively when necessary.		
I effectively develop rapport when meeting someone new.		
I distinguish big from small errors to deal with them appropriately.		
I get easily agitated during a crisis.		
I solve problems quickly and effectively.		
If something needs to be done, I take the initiative to do it.		
I inspire trust through honesty, competence, and confidence.		
When there are multiple opinions and tasks, I find it difficult to juggle conflicting priorities.		
I show creativity and try new ideas.		
I act courteous and respectful toward others.		
I tend to not ask questions or get help from others.		
I act straightforward and honest with dealing with others.		
I actively build a "network" to have a group of people who serve as professional contacts.		

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When responding to others, I compliment them on valid points		
I evaluate the job performance of other people.		
I greet my employees and coworkers.		
I handle delicate/confidential situations carefully.		
I actively manage my impression so that I am portrayed positively by others.		
I gain power to exercise influence over others.		
When called upon to make a decision, I act decisively.		
I act patiently in a variety of situations.		
When making decisions I consider all possible consequences.		
I seek to build and maintain professional relationships.		
I command the respect of others.		
I hold others accountable for their actions.		
I set goals as a way of improving my performance.		
I plan and organize my time and activities.		
I act with integrity in thought and actions.		
When things change, I have a difficult time adapting to different environments and people.		
I follow through on my commitments.		
I identity talent in potential employees and fellow coworkers.		
When completing my work I am often unsure of the end goal of a project or task.		
I get buy-in/commitment from other people for projects.		
I tend to not be influential when dealing with others.		
I actively observe what's going on around me.		
I find it difficult to learn the unwritten rules of the workplace.		

	n/a = no basis for judgment 1 = does not meet standard at all 2 = partially meets standard 3 = meets standard 4 = exceeds standard 5 = greatly exceeds standard	n/a = no basis for judgment 1 = much worse than others 2 = slightly worse than others 3 = same as others 4 = slightly better than others 5 = much better than others
I analyze the needs of a situation or client.		
I organize work to plan out what needs to be done.		
I promote my company's product/service/business/knowledge to others.		
I lack confidence in my work and abilities.		
I answer questions thoroughly and accurately.		
When I need something from someone else, I articulate my expectations.		
I focus on developing the careers of others.		
I turn a negative situation into a positive/learning situation.		
I exercise judgment in a variety of job situations.		
I assess the interests of others to cater to them.		
I have a hard time motivating others.		
I tend to focus on the details of my work rather than the big picture.		
I update my skills by learning what's new in the field.		
When collaborating with others I voice my own opinions.		
I don't tolerate stress very well.		
I recognize limitations in myself, others, and the business environment.		
I forget to attend to the details of my work.		
I present myself with the proper authority.		
I promote a team environment.		
I seek information to help me do my work more effectively.		
I have a hard time compromising when necessary.		
I show enthusiasm for my job.		
I take rejection when I am out of options for solving a problem.		

	n/a = no basis for judgment 1 = does not meet standard at all 2 = partially meets standard 3 = meets standard 4 = exceeds standard 5 = greatly exceeds standard	n/a = no basis for judgment 1 = much worse than others 2 = slightly worse than others 3 = same as others 4 = slightly better than others 5 = much better than others
I develop strategies and plans for carrying out work.		
I undermine the authority and opinions of others.		
I use humor to make a point.		
I follow up with others on things we have discussed in previous interactions and conversations.		
I recognize people's efforts and hard work by giving praise or acknowledgement.		
Other people know I am accessible and approachable.		
I lack interest in the work that I and my coworkers do.		
I talk before I fully think through what I want to say.		
I under- or over-estimate my skills and abilities.		
If there is a conflict between myself and others, I am effective in resolving it.		
After I have made a decision, I often re-think my decision and change my mind.		
I find it difficult to get dissimilar people to work together.		
I work as a team player.		
I listen to concerns that other people have.		
I am open to hearing other points of view.		
I hold myself accountable for my actions by taking responsibility for things I do.		
I persist and work hard to get the job done.		
I know my resources and who to reach out to for help and advice.		
I reconcile differing opinions.		
I show a vision for where the company and the work should go and how we can get there.		
I use specific examples when providing feedback to others.		

	n/a = no basis for judgment 1 = does not meet standard at all 2 = partially meets standard 3 = meets standard 4 = exceeds standard 5 = greatly exceeds standard	n/a = no basis for judgment 1 = much worse than others 2 = slightly worse than others 3 = same as others 4 = slightly better than others 5 = much better than others
I respond to upset customers or coworkers by addressing their concerns.		
I take risks in my work to “push the envelope”.		
I maintain and enhance my and others' self-esteem.		
I negotiate contracts and projects.		
I show sensitivity to organizational and national cultures.		
I understand the political environment I am working in.		
When facing a setback, I find it difficult to overcome anger and frustration.		
I am ineffective in persuading others.		
I provide solutions when a problem needs to be resolved.		
I lack an entrepreneurial spirit.		
I use a democratic process for making decisions.		

Soft Skills Performance Measure: Supervisor-Version

The following statements relate to your co-op employee's work skills and behavior in his or her current position. Take a moment to think about the employee's work and respond to the questions as frankly as possible. There are no right or wrong answers.

We also asked that your employee rate his/her current performance. YOUR EMPLOYEE WILL NOT SEE YOUR RESPONSES, since this information will be sent directly to the researchers. Similarly, you will not see your employee's ratings.

Directions: Please provide ratings of your co-op employee's performance along 2 dimensions: (1) performance toward expectations/standards and (2) performance relative to other working students, using the scales provided to the right. Rate his/her performance on these dimensions for the behaviors listed below.	**PERFORMANCE STANDARDS:** **How well does the employee's performance on each of the following behaviors meet the performance expectations that were laid out by you and/or the organization?** n/a = no basis for judgment 1 = does not meet standard at all 2 = partially meets standard 3 = meets standard 4 = exceeds standard 5 = greatly exceeds standard	**COMPARATIVE PERFORMANCE:** **Compared to other working students**, how well does the co-op employee perform the following behaviors? n/a = no basis for judgment 1 = much worse than others 2 = slightly worse than others 3 = same as others 4 = slightly better than others 5 = much better than others
The employee accepts feedback from coworkers and supervisors.		
When things go wrong, the employee admits mistakes.		
The employee coaches and trains others in their work.		
If something or someone makes the employee feel "rattled" he/she controls their emotions.		
The employee cooperates with others to get the job done.		
The employee adjusts his/her message depending on the audience in order to convey a point.		

	n/a = no basis for judgment 1 = does not meet standard at all 2 = partially meets standard 3 = meets standard 4 = exceeds standard 5 = greatly exceeds standard	n/a = no basis for judgment 1 = much worse than others 2 = slightly worse than others 3 = same as others 4 = slightly better than others 5 = much better than others
If someone has a problem with something the employee has done, he/she handles objections appropriately.		
The employee demonstrates empathy when dealing with others.		
The employee micromanages projects.		
The employee models the behaviors she/he would like to see others perform.		
When responding to others, the employee modifies his/her reactions to fit the organizational culture.		
When starting a project or task, the employee starts by defining the objectives.		
If something needs to be addressed, the employee confronts an issue head-on to defuse the situation.		
The employee delegates work to others as appropriate.		
The employee delivers effective presentations.		
The employee tends to make inappropriate and "off-color" comments.		
The employee acts aggressively or assertively when necessary.		
The employee effectively develops rapport when meeting someone new.		
The employee distinguishes big from small errors to deal with them appropriately.		
The employee acts calm during a crisis.		
The employee solves problems quickly and effectively.		

	n/a = no basis for judgment 1 = does not meet standard at all 2 = partially meets standard 3 = meets standard 4 = exceeds standard 5 = greatly exceeds standard	n/a = no basis for judgment 1 = much worse than others 2 = slightly worse than others 3 = same as others 4 = slightly better than others 5 = much better than others
If something needs to be done, the employee takes the initiative to do it.		
The employee inspires trust through honesty, competence, and confidence.		
When there are multiple opinions and tasks, the employee juggles conflicting priorities.		
The employee shows creativity and tries new ideas.		
The employee acts courteous and respectful toward others.		
The employee tends to ask questions and get help from others.		
The employee acts straightforward and honest when dealing with others.		
The employee actively builds a “network” to have a group of people who serve as professional contacts.		
When responding to others, the employee compliments them on valid points.		
The employee evaluates the job performance of other people.		
The employee greets employees and coworkers.		
The employee handles delicate/confidential situations carefully.		
The employee actively manages his/her impression so that they are portrayed positively by others.		
The employee gains power to exercise influence over others.		
When called upon to make a decision, the employee acts decisively.		
The employee acts patiently in a variety of situations.		

	n/a = no basis for judgment 1 = does not meet standard at all 2 = partially meets standard 3 = meets standard 4 = exceeds standard 5 = greatly exceeds standard	n/a = no basis for judgment 1 = much worse than others 2 = slightly worse than others 3 = same as others 4 = slightly better than others 5 = much better than others
When making decisions the employee considers all possible consequences.		
The employee seeks to build and maintain professional relationships.		
The employee commands the respect of others.		
The employee holds others accountable for their actions.		
The employee sets goals as a way of improving his/her performance.		
The employee plans and organizes his/her time and activities.		
The employee acts with integrity in thought and actions.		
When things change, the employee has a hard time adapting to different environments and people.		
The employee follows through on commitments.		
The employee identities talent in potential employees and fellow coworkers.		
When completing his/her work the employee knows the end goal.		
The employee gets buy-in/commitment from other people for projects.		
The employee influences others by being effective and persuasive.		
The employee actively observes what's going on around him/her.		
The employee learns the unwritten rules of the workplace.		
The employee analyzes the needs of a situation or client.		

	n/a = no basis for judgment 1 = does not meet standard at all 2 = partially meets standard 3 = meets standard 4 = exceeds standard 5 = greatly exceeds standard	n/a = no basis for judgment 1 = much worse than others 2 = slightly worse than others 3 = same as others 4 = slightly better than others 5 = much better than others
The employee organizes work to plan out what needs to be done.		
The employee promotes the company's product/service/business/knowledge to others.		
The employee shows confidence in his/her work and abilities.		
The employee answers questions thoroughly and accurately.		
When the employee needs something from someone else, he/she articulates his expectations.		
The employee focuses on developing the careers of others.		
The employee turns a negative situation into a positive/learning situation.		
The employee exercises judgment in a variety of job situations.		
The employee assesses the interests of others to cater to them.		
The employee motivates others.		
The employee tends to focus on the details rather than the big picture.		
The employee updates his skills by learning what's new in the field.		
When collaborating with others the employee voices his/her own opinions.		
The employee tolerates stress.		
The employee recognizes limitations in him/herself, others, and the business environment.		
The employee attends to the details of his/her work.		

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The employee presents him/herself with the proper authority.		
The employee promotes a team environment.		
He/she seeks information to help her do her work more effectively.		
The employee compromises when necessary.		
The employee shows enthusiasm for his/her job.		
The employee takes rejection when he/she is out of options for solving a problem.		
The employee develops strategies and plans for carrying out work.		
The employee undermines the authority and opinions of others.		
The employee uses humor to make a point.		
The employee follows up with others on things they have discussed in previous interactions and conversations.		
The employee recognizes people's efforts and hard work by giving praise or acknowledgement.		
Other people know he/she is accessible and approachable.		
The employee shows interest in the work that he/she and coworkers do.		
The employee talks before he/she fully thinks through what they want to say.		
The employee under- or over-estimate his/her skills and abilities.		
If there is a conflict between him/herself and others, the employee is effective in resolving it.		

	n/a = no basis for judgment 1 = does not meet standard at all 2 = partially meets standard 3 = meets standard 4 = exceeds standard 5 = greatly exceeds standard	n/a = no basis for judgment 1 = much worse than others 2 = slightly worse than others 3 = same as others 4 = slightly better than others 5 = much better than others
After the employee has made a decision, she/he remains firm in that decision.		
The employee gets dissimilar people to work together.		
The employee works as a team player.		
The employee listens to concerns that other people have.		
The employee is open to hearing other points of view.		
The employee holds him/herself accountable for their actions by taking responsibility for things he/she does.		
The employee persists and works hard to get the job done.		
The employee knows their resources and who to reach out to for help and advice.		
The employee reconciles differing opinions.		
The employee shows a vision for where the company and the work should go and how we can get there.		
The employee uses specific examples when providing feedback to others.		
The employee responds to upset customers or coworkers by addressing their concerns.		
The employee takes risks in their work to “push the envelope”.		
The employee maintains and enhances his/her and others' self-esteem.		
The employee negotiates contracts and projects.		
The employee shows sensitivity to organizational and national cultures.		

	n/a = no basis for judgment 1 = does not meet standard at all 2 = partially meets standard 3 = meets standard 4 = exceeds standard 5 = greatly exceeds standard	n/a = no basis for judgment 1 = much worse than others 2 = slightly worse than others 3 = same as others 4 = slightly better than others 5 = much better than others
The employee understands the political environment he/she is working in.		
The employee overcomes setbacks.		
The employee is effective in persuading others.		
The employee provides solutions when a problem needs to be resolved.		
The employee possesses an entrepreneurial spirit.		
The employee uses a democratic process for making decisions.		

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